
***Cut Sheet Printers
Maintenance Manual
Models C30 and C30D***



HP Part No. C4000-90006

Notice

Hewlett-Packard makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Hewlett-Packard assumes no responsibility for the use or reliability of its software on equipment that is not furnished by Hewlett-Packard.

This document contains proprietary information which is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of Hewlett-Packard Company. The information contained in this document is subject to change without notice.

Printing History

New editions are complete revisions of the manual. The dates on the title page change only when a new edition is published.

The software code (EXXX) printed below the date indicates the version level of the software product at the time of publication.

Edition 1 March 1994

Edition 2 December 1994

Trademarks

PCL is a trademark of the Hewlett-Packard Company. CG Times, a product of Agfa Corporation, is based on Times New Roman, a registered trademark of Monotype Corporation PLC. ITC Zapf Dingbats is a U.S. registered trademark of International Typeface Corporation. PostScript is a registered trademark of Adobe Systems, Inc. in the U.S.A. and other countries. Times Roman and Univers are trademarks of Linotype AG and its subsidiaries. Centronics is a U.S. registered trademark of Centronics Corporation. PhoenixPage is a trademark of Phoenix technologies, Ltd. UNIX is a registered trademark of UNIX System Laboratories Inc. in the U.S.A. and other countries. DEC LN03+ is a registered trademark of Digital Equipment Corporation. All other trademarks are the properties of their respective owners.

Warnings and Cautions

A WARNING denotes a hazard. It calls attention to a procedure or practice, which, if not done correctly or adhered to, could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

A CAUTION denotes a hazard. It calls attention to a procedure which, if done incorrectly or inattentively, could damage or destroy part or all of the product. Do not proceed beyond a CAUTION until the indicated conditions are fully understood and met.

Conventions

The following conventions are used throughout this manual:

Note

Notes contain important information set off from the text.

Caution

Caution messages indicate procedures which, if not observed, could result in damage to the equipment.

Warning

Warning messages call attention to situations that could result in personal injury.

Preface

The C30/C30D Maintenance Manual contains all the information needed to maintain and service Hewlett Packard C30 and C30D printers. The C30 printer series are high-speed, non-impact printers utilizing electrophotographic imaging technology.

The information in this maintenance manual is for authorized field representatives who are familiar with basic printer operations. It serves as a supplement to training classes and provides a basis for discussion with regional field service engineers and customer support representatives.

Using This Manual

This manual is organized into the following sections:

Chapter 1, “Printer and Troubleshooting Overview”

Reviews the organization of the manual, the way the printer works, and how to troubleshoot the printer, including some standard procedures to follow when troubleshooting. This chapter also includes a chart detailing exactly what each causes each error code, illustrations of all sensors in the printer, and a list of abbreviations used throughout the manual.

Chapter 2, “TAG Cross- Reference Tables”

Provides cross-reference tables; look up specific printer problem description (in either the mechanical malfunction, error code, or print quality description tables), then turn to the TAG indicated on the chart to troubleshoot the problem.

Chapter 3, “Troubleshooting Analysis Guide (TAGs)”

Detailed step-by-step procedures to help you isolate and resolve specific printer problems. If you are not sure which TAG to start with, begin with the overview, TAG 001.

Chapter 4, “Print Quality Samples”

Shows print test patterns indicating specific problems, and referencing the TAG that treats each problem.

Chapter 5, “Diagnostic Tests”

Reviews each printer software diagnostic.

Chapter 6, “Wiring Diagrams and Electrical Data”

Shows printer schematics and locations of individual components.

Chapter 7, “Removal/Replacement Procedures”

Outlines procedures to follow when removing and replacing printer parts, also called FRUs (Field-Replaceable Units).

Chapter 8, “Options”

Provides information about the optional High Capacity Input and High Capacity Output bins.

Chapter 9, “General Printer Maintenance”

Reviews printer maintenance procedures to complete during service calls.

Appendix A

Lists the abbreviations and acronyms used in the manual.

Index

Provides a list of references to topics and part numbers mentioned in the Maintenance Manual

Other Manuals

The *C-Series Illustrated Parts Catalog* shows every FRU and CRU (customer-replaceable unit) in the printer, including part number information. This information is frequently updated.

The *HP C30 and C30D Guide to Operations*, C4000-96006, contains all the information needed to operate Hewlett Packard C40D printers.

The *HP C30 and C40D Paper Specifications Guide*, C4672-90002, explains the various kinds of papers usable in the printer, how to care for them, and how to minimize paper-related problems with the C40D.

Copyright © 1995 Hewlett-Packard Company. All rights reserved. January 1995

Please address any comments or questions with respect to this document to:

Publication Department
Hewlett-Packard Company
HP Printers - MS 44MC
System Peripherals Operation
19111 Pruneridge Avenue
Cupertino, CA 95014

Printer and Troubleshooting Overview

Contents	1-2
Theory of Operation	1-3
Paper Path and Cycle Sequence	1-5
Simplex Printing	1-5
Duplex Printing	1-5
Error Code Technical Definitions	1-7
Sensor and Switch Locations	1-11
Troubleshooting Overview	1-15
General Troubleshooting Tips	1-15
The Problem: Printer or Host?	1-16
Protocol Converters	1-17
Reading the Error Log	1-17
Confirming Line Power	1-18
Using the Troubleshooting Analysis Guide (TAG)	1-19
Sample TAG	1-19
Standard Procedures	1-21
Power-on-reset (POR)	1-21
Checking Continuity	1-21
Installing the Interlock By-pass Tool	1-22
Producing a Developed Image	1-22
Producing a Toner Patch	1-22
Completing a Service Call	1-23
Clearing the Error Log	1-24

TAG Cross-Reference Tables

TAG Cross-Reference Tables	2-2
Error Code/TAG Cross-Reference	2-3
Print Quality/TAG Cross-Reference	2-9
Mechanical Malfunction/TAG Cross-Reference	2-12

Troubleshooting Analysis Guide (TAGs)

Contents	3-2
Troubleshooting Analysis Guide (TAGs)	3-4
TAG 001: Troubleshooting a Problem	3-5
TAG 002: Check & Problem Resolution	3-8
TAG 010: Upper Cassette Malfunction	3-12
E10: Envelope Tray Out of Envelopes	3-14
TAG 011: Lower Cassette Malfunction	3-16

TAG 012: Upper Cassette Not Latched	3-18
TAG E12: Envelope Tray or Feeder Not Latched	3-21
TAG 013: Lower Cassette Not Latched	3-24
TAG 020: Paper Jam/Misfeed in Upper Cassette Area	3-26
TAG 021: Paper Jam/Misfeed in /Lower Cassette Area.	3-30
TAG 022: Paper Jam in the Transfer or Fuser Area	3-34
TAG 023: Paper Jam in the Output Area	3-39
TAG 025: Paper in Input Area Before Printing	3-41
TAG 026: Paper in Output Area Before Printing	3-43
TAG 030: Developer Bias Short/Failure	3-44
TAG 031: Toner Patch Reference Level Too Low.	3-47
TAG 032: Toner Patch Too Light.	3-49
TAG 035: Out of Toner or ADD TONER Indicator On.	3-51
TAG 036: Developer Unit Not Installed.	3-53
TAG 040: Photoconductor Seam Sensor Malfunction	3-54
TAG 044: Main Charger/Transfer Charger Circuit Open.	3-58
TAG 045: Main Charger Circuit Shorted	3-61
TAG 050: Transfer Charger Circuit Shorted	3-63
TAG 055: Erase Lamp Malfunction	3-65
TAG 070: Fuser Unit Malfunction	3-67
TAG 071: Open Fuser Thermistor	3-72
TAG 072: Fuser Unit Temperature Too High	3-73
TAG 083: Job Offset Mechanism Malfunction	3-75
TAG 097: +12 Vdc Power Shorted or Sensing Problem	3-79
TAG 098: -12 Vdc Power Shorted	3-90
TAG 099: +24 Vdc Power Shorted.	3-92
TAG 100: PCL Board Interface Malfunction	3-102
TAG 101: IGS Controller Diagnostic Failure.	3-103
TAG 130: Diskette/Disk Drive Malfunction	3-104
TAG 200: IGS Internal Communication Malfunction	3-108
TAG 201: IGS-PCL Interface Malfunction	3-110
TAG 405: IGS Bit-Map RAM Malfunction	3-112
TAG 500: +5 Vdc Power Malfunction	3-113
TAG 600: AC Power Malfunction	3-118
TAG 610: Operator Panel Malfunction	3-125
TAG 700: Output Tray Circuit Malfunction.	3-130
TAG 702: Paper Size Detection Malfunction.	3-132
TAG 703: Upper Cassette Malfunction	3-135
TAG 704: Lower Cassette Malfunction	3-136
TAG 705: Multiple Paper Feeding	3-137
TAG 706: Paper Damaged or Wrinkled	3-138
TAG 707: Upper Paper Guide Assembly Not Closing.	3-139
TAG 750: Counter Malfunction	3-140
TAG 751: Main Drive Motor Runs Continuously	3-142
TAG 753: External Communications Malfunction.	3-143
TAG 754: Attachment Option Malfunction	3-146
TAG 800: Prints Blank or With Dark Horizontal Bands	3-148
TAG 801: Prints Light or Light With Carrier Particles	3-152
TAG 802: Prints With Voids or White Spots	3-158
TAG 803: Prints With Light or White Vertical Streaks	3-160

TAG 804: Prints With Light Horizontal Bands	3-162
TAG 805: Black Prints	3-163
TAG 806: Prints with Dark Spots or Scratches	3-166
TAG 807: Misregistered/Skewed Prints (Simplex)	3-168
TAG 808: Prints Overtone/Dark Vertical Streaks	3-172
TAG 809: Blurred or Smeared Vertical Streaks on Prints	3-177
TAG 810: Uneven Density or Dark Areas on Prints	3-180
TAG 811: Background/Residual Images/Dark Prints	3-182
TAG 812: Uneven or No Fusing on Prints	3-187
TAG 813: Residual Images on Prints	3-189
TAG 815: Prints Resulting From Printhead Malfunctions	3-191
TAG 900: Top Cover Interlock Malfunction, Duplex	3-192
TAG 901: Misregistration/Skewed Prints (Duplex)	3-194
TAG 902: Paper Jam in Duplex Area	3-198

Print Quality Samples

Contents	4-2
Print Quality Samples	4-3
Sample 1: Good Quality Print	4-4
Sample 2: Washout	4-5
Sample 3: Blank Print	4-6
Sample 4: Light Print	4-7
Sample 5: Light Print With Background	4-8
Sample 6: Voids or White Spots	4-9
Sample 7: Light Vertical Streaks	4-10
Sample 8: Blank Vertical Bands	4-11
Sample 9: Light Horizontal Bands	4-12
Sample 10: Black or Dark Print	4-13
Sample 11: Dark Specks, Lines, or Areas	4-14
Sample 12: Dark Vertical Lines	4-15
Sample 13: Skewed Prints	4-16
Sample 14: Misregistration	4-17
Sample 15: Overtone Print	4-18
Sample 16: Blurred Images or Characters	4-19
Sample 17: Varying Print Density	4-20
Sample 18: Background	4-21
Sample 19: Residual Images	4-22
Sample 20: Wrinkles	4-23
Sample 21: Fusing Problems	4-24

Diagnostic Tests

Contents	5-2
Diagnostic Tests	5-3
How to Run Diagnostics	5-3

001 Operator Panel Test	5-4
002 Upper Cassette Test	5-4
003 Lower Cassette Test.	5-5
005 Sensor Test Sequence	5-6
006 Paper Transport Clutch Test Sequence	5-7
007 Counter Test.	5-7
008 Jogging Motor Test	5-8
009 Photoconductor Test	5-8
010 Toner Supply Motor Test.	5-9
011 Main Charger Test	5-10
012 Transfer Charger Test	5-11
013 Erase Lamp Test	5-12
015 Negative Developer Bias Test	5-13
016 Duplex Feed Motor Test	5-14
017 Duplex Input Sensor Test Sequence	5-15
018 Duplex Clutch Test Sequence	5-16
019 Duplex Tray Paper-Guide Motor Test.	5-17
020 High-Capacity Output Unit Test	5-18
021 High-Capacity Input Unit Test	5-19
022 Envelope Fuser Solenoid Test	5-19
101 EIGS/MIGS Board Test.	5-20
102 EIGS/MIGS Board Test (Continuous Loop)	5-20
103 Communication Loop-back Test (Single Loop)	5-21
104 Communication Loop-back Test (Continuous Loop)	5-22
105 EIGS Program RAM Test (Continuous Loop)	5-22
107 EIGS/MIGS Bit Map Test (Single Loop)	5-23
108 EIGS/MIGS Bit Map Test (Continuous Loop)	5-23
110Format Disk/Clear Error Log	5-24
111 LED Printhead Test	5-24
112 Disk Drive Test (Single Loop With Stop on Error).	5-25
113 Disk Drive Test (Continuous Loop)	5-26

Wiring Diagrams and Electrical Data

Contents	6-2
Wiring Diagrams and Electrical Data.	6-3
Connector (J/P) Index	6-4
Connector Locations	6-6
Connectors Inside the Front Cover	6-6
Connectors Inside the Left Cover	6-7
Connectors on the Duplex Cover	6-8
Connectors Inside the Right Cover.	6-9
Connectors Inside the Top Cover	6-10
Connectors on the Back Cover	6-11
Connectors Inside the Back Cover (J/P2-14)	6-12

Connectors Inside the Back Cover (Continued) J/P18-62	6-13
Connectors Inside the Back Cover (Continued) J/P 64-85.....	6-14
Connectors Inside the Back Cover (Continued) J/P 90-800.....	6-15
Voltage Isolation Diagrams	6-16
Ground System	6-21
Host Interface Reference	6-22
RS-232C Host Interface	6-22
Standard DCE to DTE RS-232C Cable	6-23
Special Considerations for RS-232 Host Interface Users.....	6-23
DTE Host to Printer (Option 1)	6-24
DTE Host to Printer (Option 2)	6-24
IBM PC/XT to Printer	6-25
IBM PC/AT to Printer	6-25
Macintosh Communication Port to Printer.....	6-26
RS-422 Host interface	6-26
Centronics Parallel Host Interface	6-27
IBM Parallel to Printer	6-28
Special Considerations for Centronics Parallel Interface Users.....	6-29
Circuit Board Settings.....	6-30
Signal Interface Board Settings	6-30
PCL Board Settings	6-31
Printhead Circuit Board Settings	6-31

Removal/Replacement Procedures

Contents	7-2
Removal	7-4
Before You Begin	7-4
Power Considerations.....	7-4
Photoconductor Removal	7-4
Front Cover Removal	7-5
Back Cover Removal	7-6
Lower Back Cover Removal.....	7-7
Left Side Cover Removal	7-8
Right Side Cover Removal (Simplex)	7-9
Right Side Cover Removal (Duplex)	7-10
Vacuum Transport Unit Removal (Simplex)	7-11
Vacuum Transport Unit Removal (Duplex)	7-13
Top Cover Removal	7-14
Top Cover Support Removal	7-15
Top Cover Hinge Removal.....	7-16
Rear Duplex Cover Removal	7-17
Front DuplexCover Removal	7-18
Operator Panel Removal.....	7-19

Counter Removal	7-20
IGS Board Removal	7-21
PCL Board Removal	7-22
Printhead Assembly Removal	7-23
Disk Drive Housing Removal	7-25
Cooling Fan Removal	7-26
Duplex Fan Removal	7-27
Toner Motor Removal	7-28
AC Power Supply Removal	7-29
DC Power Supply Removal	7-31
High Voltage Unit Removal	7-32
PhotoconductorSeam Sensor Removal	7-33
Photoconductor Rear Guide Rail Removal	7-35
Signal Interface Board Removal	7-37
Power Control Board Removal	7-38
Jogging Motor Control Board Removal	7-39
Upper or LowerPaper Size Sensor Removal	7-40
Upper Cassette Mount Removal	7-41
Lower Cassette Mount Removal	7-45
Upper Paper Guide Removal	7-48
Upper Paper Guide Roller Removal	7-50
Lower Paper Guide Removal	7-51
Paper Timing Guide Removal	7-52
Cleaner Drive Belt Removal	7-54
Cleaner Drive Removal	7-55
Fuser Drive Belt Removal	7-56
Fuser Drive Removal	7-57
Paper Feed Drive Belt Removal	7-58
Paper Timing Roller Removal	7-59
Upper Feed Roller Removal	7-60
Lower Feed Roller Removal	7-61
Upper Pick-Up Roller Removal	7-62
Upper Pick-Up Roller Drive Removal	7-63
Lower Pick-Up Roller Removal	7-64
Lower Pick-Up Roller Drive Removal	7-65
Job Offset Assembly Removal	7-66
Exit Pinch Roller Removal	7-68
Upper Static Brush Removal	7-70
Lower Static Brush Removal	7-71
Exit Roller Assembly Removal	7-72
Exit Cover Removal (Simplex)	7-74
Exit Cover Removal (Duplex)	7-76
Paper Exit Sensor Removal	7-78
Paper Full Sensor Removal	7-79
Front Cover Interlock Switch Removal	7-80
Back Cover Interlock Switch Removal	7-81

Top Cover Interlock Switch Removal	7-82
Erase Lamp Removal	7-83
EP Cover Removal	7-84
Main Motor Removal	7-86
Main Gear Drive Removal	7-88
Duplex Control Board #1 Removal	7-89
Duplex Control Board #2 Removal	7-90
Duplex Tray Registration Motor Removal	7-91
Duplex Skew Correction Cable Removal	7-92
Upper Duplex Drive/Clutch Assembly Removal	7-94
Duplex Route Motor/Solenoid Assembly Removal	7-95
“A” Roller Removal	7-96
“B” Roller Removal	7-97
“C” Roller Removal	7-98
“C” Roller Solenoid Removal	7-99
Duplex Route Separator Removal	7-100
Duplex Paper Path Sensor Removal	7-102

Options

Contents	8-2
Introduction	8-3
1200-Sheet/2500-Sheet Feeder	8-4
Bench Test Procedure	8-5
Prefeed Adjustment Procedure	8-6
Input Control Board Logic	8-7
1400-Sheet Stacker	8-9
Bench Test Procedure	8-10
Connector Locations	8-12
Output Control Board Logic	8-14

General Printer Maintenance

Contents	9-2
General Printer Maintenance	9-3
Introduction	9-3
Every-Call Cleaning Procedure	9-3
Paper Feed Tension Adjustment Procedure	9-3
Lubrication Procedures	9-3
Tune-Up Procedure	9-3
Safety Precautions	9-3
Tool Requirements: Service Kit	9-4
Tools/Supplies	9-4
End User Cleaning Kit	9-4

Printer/Maintenance Record	9-4
Every-Call Cleaning Procedure	9-6
Remove Major Consumable Supplies	9-6
Inspect and Vacuum	9-6
Clean Internal Areas	9-6
Clean the Fuser Unit	9-6
Clean the Developer Unit	9-7
Clean the Cleaner Unit/Main Charger	9-7
Clean the Photoconductor Unit Area	9-7
Clean the Transfer Charger	9-7
Run Test Prints	9-7
Adjusting Paper Feed Tension	9-8
Printers With Paper Tension Levers	9-8
Printers With Pick Pressure Adjusters	9-9
Lubrication Procedure	9-11
Front View Lubrication Tables	9-13
Duplex Only	9-13
Rear View Lubrication Tables	9-15
Duplex Only	9-15
Tune-Up Maintenance Procedure	9-18

Abbreviations and Acronyms

Printer and Troubleshooting Overview

Contents

Printing and Troubleshooting Overview

Theory of Operation	1-3
Paper Path and Cycle Sequence.	1-5
Simplex Printing	1-5
Duplex Printing	1-5
Error Code Technical Definitions	1-7
Sensor and Switch Locations	1-11
Troubleshooting Overview	1-15
General Troubleshooting Tips	1-15
The Problem: Printer or Host?	1-16
Protocol Converters	1-17
Reading the Error Log	1-17
Confirming Line Power	1-18
Using the Troubleshooting Analysis Guide (TAG)	1-19
Sample TAG	1-19
Standard Procedures	1-21
Power-on-reset (POR)	1-21
Checking Continuity	1-21
Installing the Interlock By-pass Tool.	1-22
Producing a Developed Image	1-22
Producing a Toner Patch	1-22
Completing a Service Call	1-23
Clearing the Error Log	1-24

Theory of Operation

The printer uses an electrophotographic imaging system based on LED array technology. Two key components of the printer are the image generation system (IGS) controller and the printer control logic (PCL) board.

Image Generation System (IGS) controller: Each printer is equipped with an IGS controller, which provides the interface between the host computer, the PCL board, LED printhead, and the disk drives. The controller may be an EIGS or RIGS board.

Printer Control Logic (PCL) board: The PCL board directs the mechanical functions of the printer and print cycle timing. The PCL board also receives initial machine information, such as empty paper cassettes, paper jams, and fuser unit problems.

The illustration on the following page details the printing process. The numbers represent the sequence of events from the time that the system interface receives data, through the production of a print image, to the preparation for another print.

1 Receiving data

Data from the host is received by the Signal Interface (SI) PCA and is passed to the Image Generating System (IGS) PCA, which temporarily stores the data in RAM. The data may consist of information generated on the host computer and sent over the host communication interface or it may consist of information generated by printer software, such as a request for test prints or to print the directory of a diskette.

2 Bit Image

The IGS transforms the host file into a bit map image of 1s and 0s and stores them in user bitmap RAM. Bitmap memory is nothing more than an electronic piece of paper.

3 Charging the photoconductor belt

When the IGS controller has a full page of data, it causes the PCL board to turn on the main motor, which rotates the photoconductor belt. As the photoconductor belt rotates, the main charger applies a high negative charge to it, which repels toner from the photoconductor belt except in the areas to print.

4 Exposing the image

The negatively charged belt then passes the LED printhead, where the IGS controller turns the LEDs on and off to discharge the areas of the belt at a density of 300 dots per inch. The 1s in the bitmap memory turn the LEDs on; 0s turn the LEDs off. The discharged areas create a latent mirror image of the print on the photoconductor belt.

5 Developing the image

As the photoconductor belt continues to rotate, it brings the latent image to the developer unit. A negative developer bias is applied to toner and the toner is transferred to the surface of the photoconductor belt. The negatively charged toner (which clings to small metal carrier beads) is attracted to the discharged areas of the belt. The carrier beads do not transfer. The belt, with the developed image on its surface, rotates out of the developer unit. At this time you can remove the photoconductor belt and read what is printed on it, which you may need to do when troubleshooting print problems.

6 Activating paper

As the image is being developed, a sheet of paper is transported to the photoconductor belt. The PCL board controls this activity. A series of paper pick-up, feed, and timing rollers guide the paper so the developed image is properly registered with the leading edge of the sheet.

7 Transferring the image to the paper

Next, the paper contacts the surface of the photoconductor belt. Above the paper and the belt is the transfer corona, which has a high positive charge, and attracts the developed image from the belt to the surface of the paper. At this point, you can remove the printed image to verify print quality, but the toner is not yet fused.

8 Fusing the image to the paper

The vacuum transport unit advances the paper with the developed image to the fuser unit where heat and pressure bond the toner to the paper. The finished print then arrives at the paper output tray.

9 Cleaning routine

After a print is made, the photoconductor belt must be cleaned for the next print. The belt first passes the erase lamp where any remaining latent image is erased. The belt continues to the cleaning unit where a charged brush rotates against the surface to remove any residual toner. This toner is recycled to the developer unit for reuse.

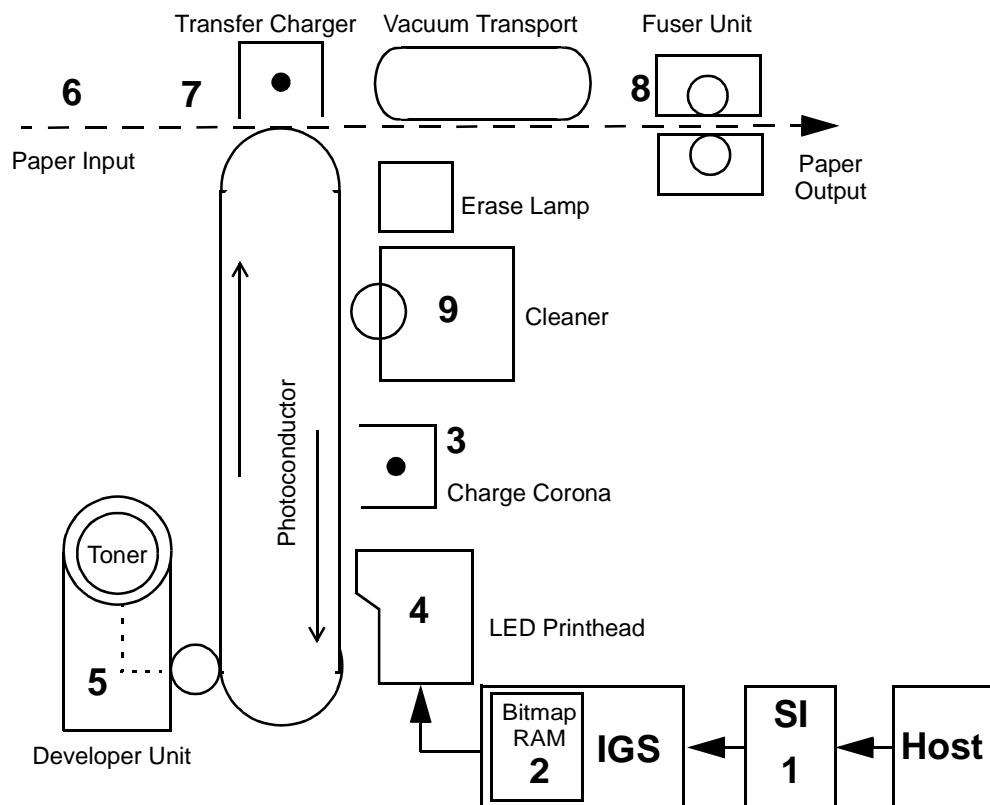


Figure 1-1. Cycle of Operation

Paper Path and Cycle Sequence

The IGS board signals the PCL board that a page of data is ready to be printed. When this happens the following sequence takes place.

Simplex Printing

- 1** PCL software downloaded to the PCL board from the disk drive system turns on the main motor.
- 2** The PCL board engages the paper pick clutch which causes the roller to feed a sheet of paper.
- 3** The paper is passed to the feed roller where the PCL board has engaged the feed roller clutch.
- 4** The feed roller passes the paper to the paper timing roller. Prior to reaching the paper timing roller, the paper passes over the paper timing sensor. (If the paper does not energize this sensor in a specified amount of time, an error 020/021 will occur.) The leading edge of the paper is registered against the paper timing roller. The paper timing clutch is engaged and the paper is passed over the photoconductor for transfer. This registers the paper to the printer and the image to the paper. The paper timing sensor signal also alerts the PCL to inform the IGS that it can begin to send the data.
- 5** The PCL board engages the paper timing roller clutch and, at the same time, turns on the transfer charger to provide a high positive voltage. The developed image on the photoconductor comes in contact with the paper and the high positive voltage causes the image to transfer to the paper.
- 6** Because the toner is not yet fixed to the paper, a vacuum transport assembly, gripping the paper from the back side, moves the paper to the fuser unit, where heat and pressure bond the toner to the paper.
- 7** Upon leaving the fuser unit, the paper comes in contact with the paper exit sensor. (If the paper does not energize this sensor in a given amount of time after leaving the paper timing sensor [step 4], an error 022 will occur.)
- 8** The exit roller moves the paper to the exit tray. (If the exit sensor is not cleared in a specified amount of time, an error 023 will occur.)

Duplex Printing

When duplex is selected, the PCL board controls the paper motion with page scheduling assistance from the IGS board. The duplex page router is engaged. When in duplex mode, it is important to note that the printer runs multiple pages through the paper path at the same time to increase speed. (See [Figure 1-2, "Paper Path," on page 1-6.](#))

- 1** In a duplex job, the duplex router solenoid behind the fuser is engaged and mechanical fingers route the paper to the duplex area. Also, the "A" roller clutch engages to turn the "A" and "B" rollers (connected via a belt).

- 2 The paper upon passing through the "B" roller comes in contact with the duplex sensor. (If the paper does not energize this sensor in a given amount of time, an error 060 will occur.)
- 3 The "C" roller bidirectional motor turns on and passes the paper into the turnaround tray. The paper sensor in the turnaround tray is activated and the paper is center registered. (If the paper does not energize this sensor in a given amount of time after leaving the duplex sensor, an error 061 will occur.)
- 4 At this time the solenoid for the router at the turnaround tray engages so the paper can be routed to be printed on the duplex side.
- 5 In a given amount of time after the paper energizes the paper sensor in the turnaround tray, the bi-directional motor reverses and passes the paper to the paper timing roller. (If the paper does not energize the paper timing sensor in a given amount of time after leaving the turnaround sensor, an error 062 will occur.)
- 6 At this point, the same steps happen as during a simplex cycle.

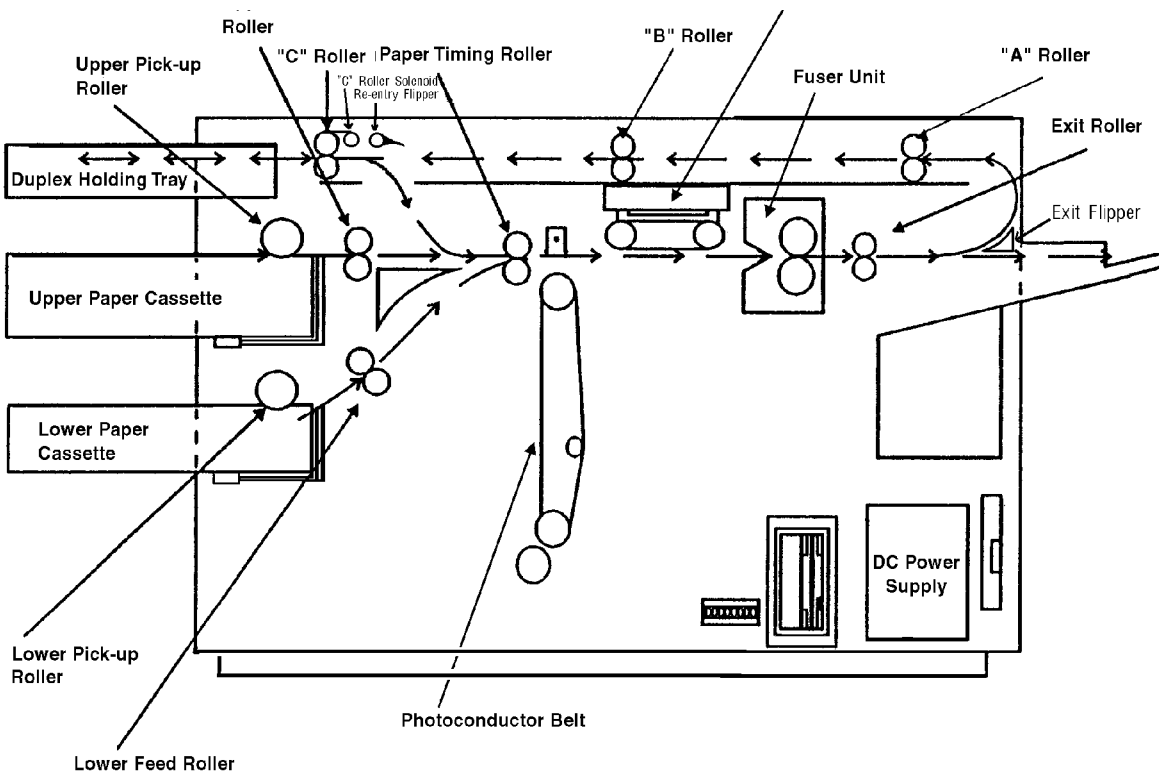


Figure 1-2. Paper Path

Error Code Technical Definitions

The following table lists the printer error codes and their descriptions.

Table 1-1. Error Code Technical Definitions

Type	Error	Description
Cassette Errors	010, E10	PCL board detected no signal from upper paper cassette empty sensor indicating no paper present
	011	PCL board detected no signal from lower paper cassette empty sensor indicating no paper present
	012, E12	PCL board detected no signal from upper cassette in switch
	013	PCL board detected no signal from lower cassette in switch
Paper Jams in the Primary Paper Path	020	PCL board detected that the paper being fed from the upper cassette did not reach the timing paper sensor within the allotted time
	021	PCL board detected that the paper being fed from the lower cassette did not reach the timing paper sensor within the allotted time
	022	PCL board detected that the exit paper sensor did not activate or the timing sensor did not deactivate within the allotted time
	023	PCL board detected that either: <ol style="list-style-type: none"> 1. The exit paper sensor (within the printer) became activated but did not deactivate within the specified time. 2. (HCO only). The paper exit sensor (within the HCO) did not become activated or deactivated within the allotted time
	025	PCL board detected that the timing paper sensor was activated immediately after one of the covers was closed
	026	PCL board detected that either the exit paper sensor (within the printer) or the paper exit sensor (within the HCO) was activated immediately after one of the covers was closed
	027	PCL board detected paper in the duplex area after clearing a jam
Toner Control Errors	030	PCL board detected a signal from the high-voltage power supply unit indicating an abnormal load on the bias voltage to either the developer unit, cleaner unit, or printhead-cleaning bias plates.
	031	PCL board detected a signal from the toner patch sensor board indicating that the reference voltage level on the photoconductor was too low.
	032	PCL board detected a signal from the toner patch sensor board indicating that the toner patch on the photoconductor was too light.
	035	PCL board detected too many successive signals from the toner patch sensor board for a toner feed.
	036	PCL board detected no developer unit electrical interlock signal from the J25 connector.

Table 1-1. Error Code Technical Definitions (Continued)

Type	Error	Description
OPC Rotation Errors	040	PCL board sensed that the signal from the photoconductor seam sensor either was not of sufficient amplitude or did not show the proper timing.
	041	PCL board detected an abnormally high amount of current needed to drive the photoconductor seam sensor LED (within the photoconductor unit).
	042	PCL board detected an open connection to the photoconductor seam sensor LED (within the photoconductor unit).
	044	PCL board detected a signal from the high-voltage power supply unit indicating that either the main charger or transfer charger circuits have an open connection.
	045	PCL board detected a signal from the high-voltage power supply unit indicating an abnormally high load on the bias voltage to the main charger.
	046	PCL board detected a signal from the high-voltage power supply unit indicating an open connection in the main charger circuit (diagnostic test only).
HVPS Errors	050	PCL board detected a signal from the high-voltage power supply unit indicating an abnormally high load on the bias voltage to the transfer charger.
	051	PCL board detected a signal from the high-voltage power supply unit indicating an open connection in the transfer charger circuit (diagnostic test only).
	055	PCL board detected that the current needed to drive the erase lamp assembly was either higher or lower than the specified limits.
Duplex Jams	060	PCL board detected that the exit paper sensor did not deactivate or the paper path sensor did not activate within the allotted time.
	061	PCL board detected that the duplex paper path sensor did not deactivate, the turnaround tray sensor did not activate in the allotted time, or the duplex paper path sensor activated at POR.
	062	PCL board detected that paper leaving the duplex turnaround tray did not reach the timing sensor within the allotted time or the duplex turnaround sensor was activated at POR.
Fuser Control Errors	070	PCL board sensed, via the fuser thermistor, that the temperature of the fuser unit did not change within the allotted time.
	071	PCL board sensed an open connection in the fuser thermistor circuit
	072	PCL board sensed that the resistance of the fuser thermistor was too low indicating that the temperature of the fuser unit was higher than the specified limit.
	073	PCL board sensed that the resistance of the fuser thermistor was too high indicating that the temperature of the fuser unit was lower than the specified limit.

Table 1-1. Error Code Technical Definitions (Continued)

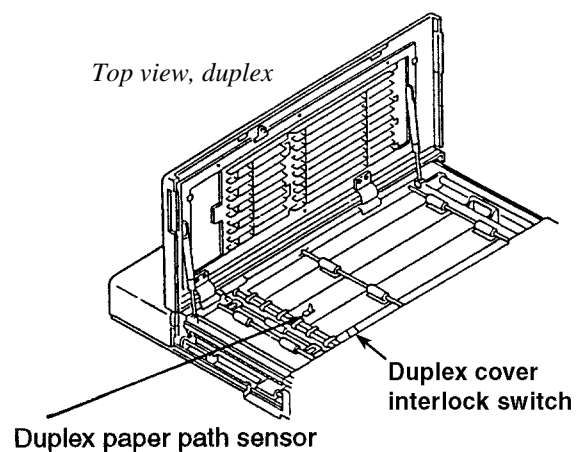
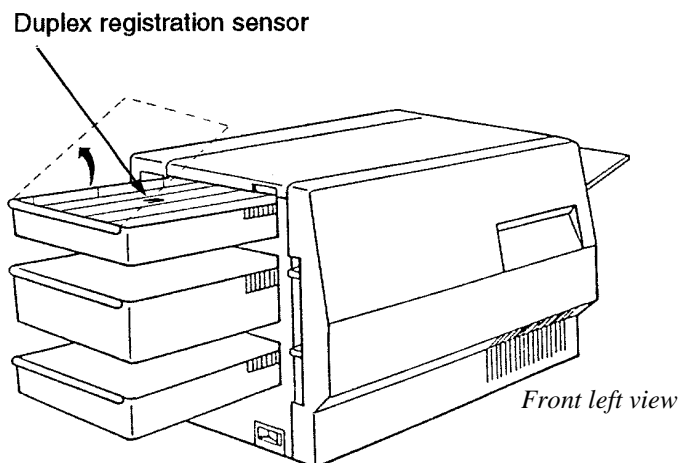
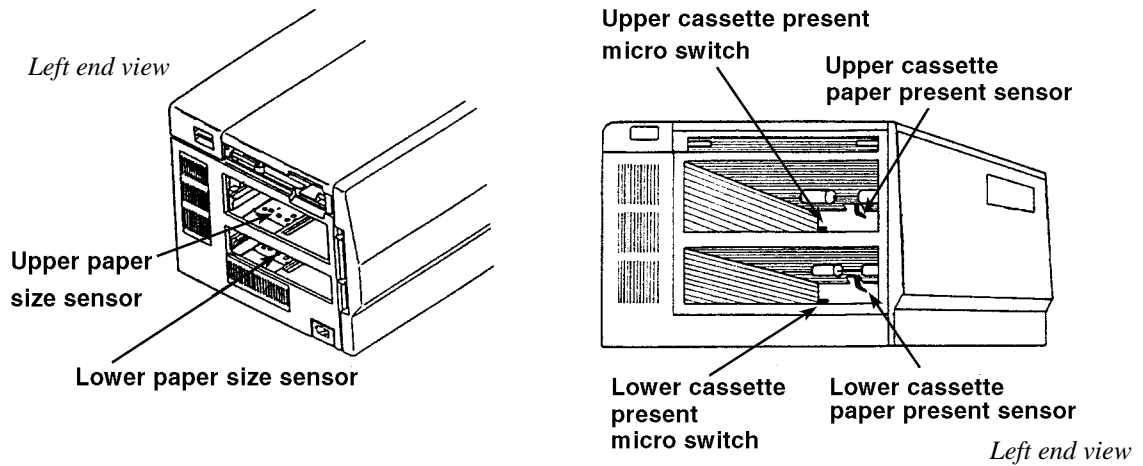
Type	Error	Description
Jogger Errors	081	PCL board activated the jogging motor but did not detect a change in the signal from the front sensor in the job offset assembly (diagnostic test only).
	082	PCL board activated the jogging motor but did not detect a change in the signal from the rear sensor in the job offset assembly (diagnostic test only).
	083	PCL board activated the jogging motor but did not detect a change in the signal from either the front or rear sensors in the job offset assembly.
	084	PCL board detected a signal from the duplex control board #2 indicating that the registration side sensor did not activate after command was sent to the duplex control board #2 to turn on the resist motor (diagnostic test only).
	085	PCL board detected a signal from the duplex control board #2 indicating that the registration side sensor did not deactivate after a command was sent to the duplex control board #2 to turn on the resist motor (diagnostic test only).
	086	PCL board detected a signal from the duplex control board #2 indicating that either the registration side sensor was activated and would not deactivate or was deactivated and would not activate after a command was sent to the duplex control board #2 to turn on the resist motor.
LVPS Errors	090	PCL board detected that one of the cover interlocks was not activated (diagnostic test only).
	097	PCL board detected a signal from the IGS board indicating the absence of +12 Vdc.
	098	PCL board detected a signal from the IGS board indicating the absence of ,-12 Vdc.
	099	PCL board detected a signal from the IGS board indicating the absence of +24 Vdc.
Controller Errors	100, 102	IGS board detected a failure of the PCL board status codes.
	101	PCL board detected that the IGS board was in a halt state (diagnostic test only).
	121-127	PCL board detected an error in the communication between the PCL board and the IGS board.
	130-134	PCL board detected an error during the internal diagnostic testing of the PCL board.
	140	PCL board detected an error during the internal diagnostic testing of the PCL board.
	145	PCL board detected an error during the internal diagnostic testing of the PCL board.
	160-182	PCL board detected an error during the internal diagnostic testing of the PCL board.
	199-215	PCL board detected an error in the communication between the PCL board and the IGS board.
	301-401	IGS board detected an error during the internal diagnostic testing of the IGS board.

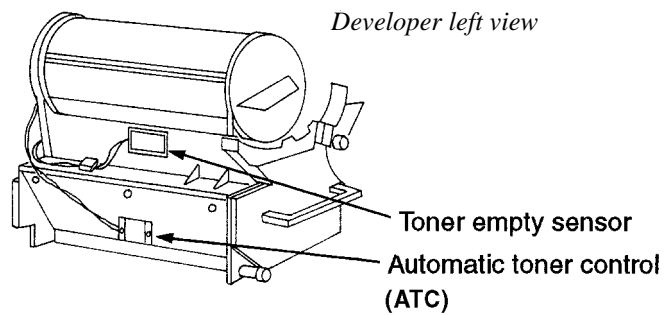
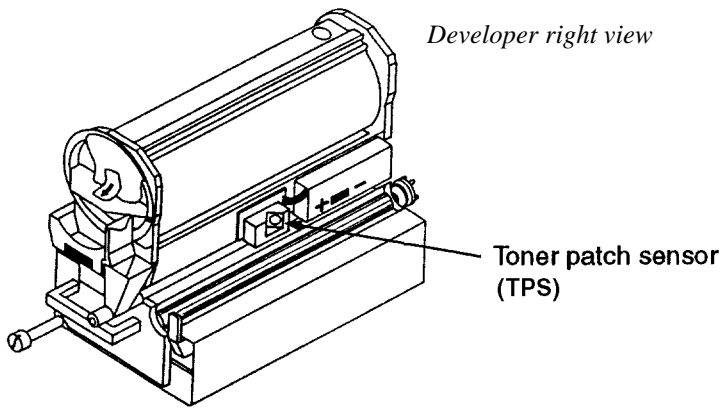
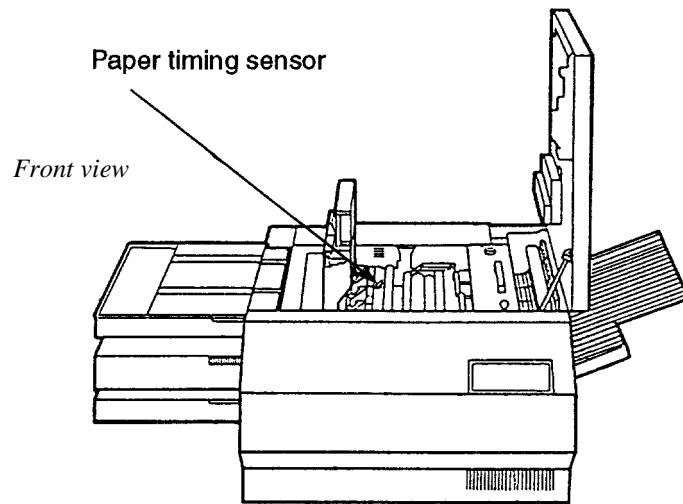
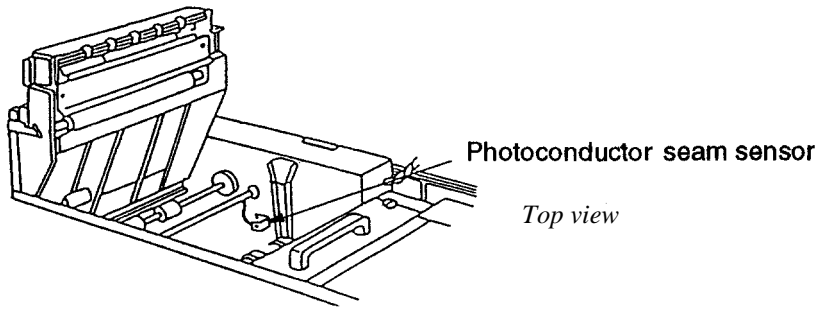
Table 1-1. Error Code Technical Definitions (Continued)

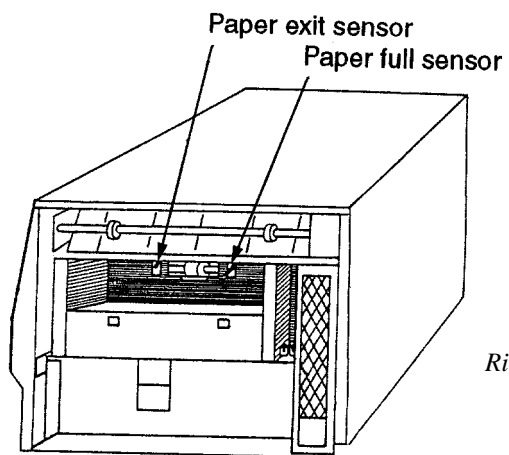
Type	Error	Description
DD Errors	405-409	IGS board detected an error in the program RAM during the internal diagnostic testing of the IGS board.
	450-566	IGS board detected an error during the internal diagnostic testing of the IGS board and software.
Controller Errors	570-586	IGS board detected an error when communicating with the floppy disk drive.
	600-610	IGS board detected an error during the internal diagnostic testing of the IGS board.
Communication Errors	701-703	IGS board detected an error when communicating with a host using RS232 communications.
	770-784	IGS board detected an error when communicating with a host using RS422 communications.
	888	IGS board detected that the PCL board was in a halt or reset state.

Sensor and Switch Locations

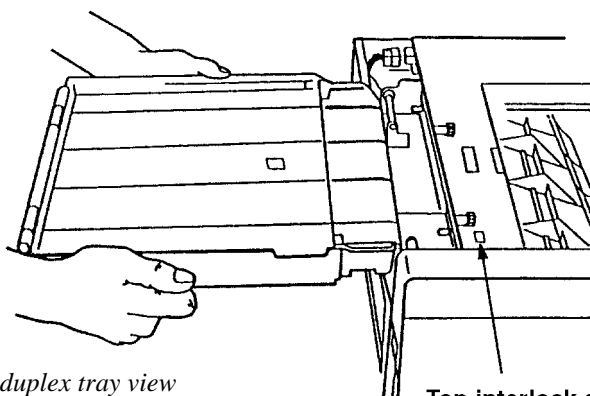
The following pages illustrate the locations of the printer's sensors and switches. [Table 1-2, "Sensor and Switch List," on page 1-14](#), lists them.



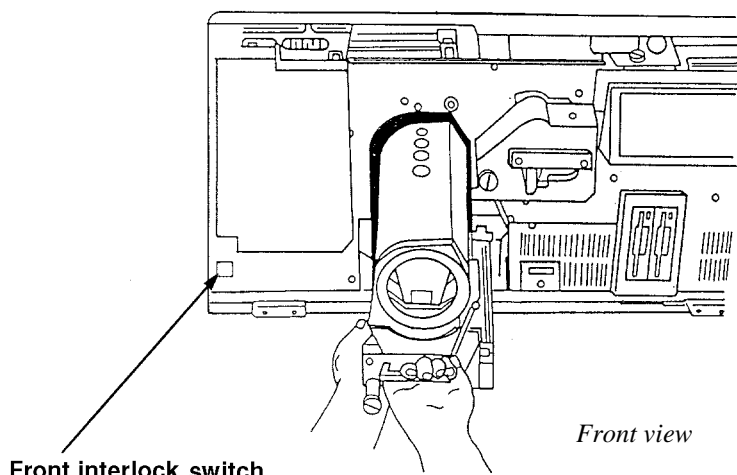




Right side view



Top left, duplex tray view



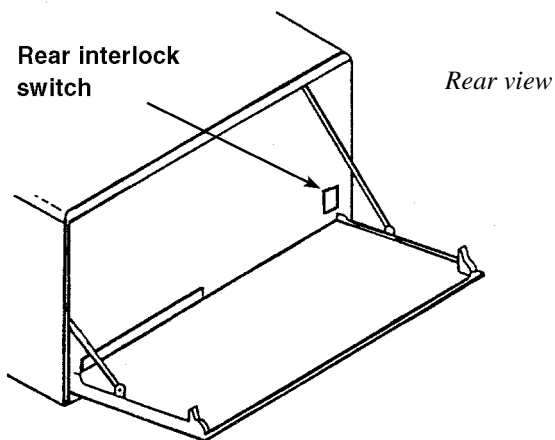


Table 1-2. Sensor and Switch List

Sensor/Switch Name	Page No.
Automatic toner control sensor	1-12
Cassette paper present sensors, upper and lower	1-11
Cassette present micro switches, upper and lower	1-11
Duplex registration sensor	1-11
Duplex paper path sensor	1-11
Duplex cover interlock switch	1-11
Interlock switch, top	1-13
Interlock switch, front	1-13
Interlock switch, rear	1-14
Paper exit sensor	1-13
Paper full sensor	1-13
Paper size sensors, upper and lower	1-11
Paper timing sensor	1-12
Photoconductor seam sensor	1-12
Toner empty sensor	1-12
Toner patch sensor	1-12

Troubleshooting Overview

Throughout the printer's life problems occur, such as those indicated when an error code displays on the operator panel, a printer produces poor quality prints, or the printer malfunctions. Use the tools provided in this manual to diagnose and resolve printer problems.

These tools include:

- The Troubleshooting Analysis Guide, which contains troubleshooting procedures called TAGs. *TAG 001: Troubleshooting A Printer Problem* provides an overview of how to use TAGs.
- Cross reference tables, which link error codes, print quality problems, and mechanical malfunctions to specific TAGs.
- Print quality samples, which you can use to identify a printing problem and its associated TAGs.
- Diagnostics, through which the printer checks itself for a range of problems.

The next several pages review troubleshooting basics and standard procedures followed in every troubleshooting session, including:

- Identifying whether a problem belongs to the printer or host
- Isolating protocol converter problems
- Running test prints
- Reading the error log
- Confirming line power
- Using TAGs
- Power-On Reset
- Installing the interlock by-pass tool
- Checking continuity
- Producing a developed image
- Producing a toner patch
- Completing a service call
- Clearing the error log

General Troubleshooting Tips

When a printer problem arises, swapping out all printer supplies may temporarily mask the problem. *This is an unsatisfactory, short-term, and expensive solution to correcting the problem.* Dust and other contamination, rather than printer supplies, are more often the causes of problems. Clean consumable connectors, alignment guides, and areas before changing consumables.

Many failures add excess toner to the printer's engine. When you are advised to de-tone the printer as part of a problem fix, run at least 200 test prints before evaluating whether the problem has been resolved.

The Problem: Printer or Host?

The printer is one component in a large host system. Before you start any troubleshooting, make sure that the problem really belongs to the printer rather than to some other component in the host system. Print quality problems and mechanical malfunctions are almost always associated with the printer. However, host interface and software emulation problems can be caused by some other component of the host system even though, at first glance, they appear to be printer problems. For instance, text printed in the wrong location on a page, improper page breaks, and missing segments of data strongly indicate a host, not a printer, problem.

The first step in troubleshooting any problem is to isolate the printer from the host system; you can then run test prints. Producing test prints exercises the printer as a stand-alone machine, ensuring that the basic printer software and all mechanical functions of the printer are working.

Running Test Prints

To run test prints:

- 1** Disconnect the host interface.
- 2** Run a series of test prints. A directory of the boot device and multiple listings of fonts print, followed by an unformatted and formatted error log. A continuous flow of the test pattern then prints. To run test prints:
 - For simplex printers, press:
STOP
TEST
 - For duplex printers, press:
STOP
DUPLEX
TEST
 - To *stop* printing the test pattern, press:
STOP

On pressing STOP, the printer will print all test prints stored in the printer's buffer, then stop.

If the test pattern prints successfully, the problem probably originates with the host system or a protocol converter connected to the host.

Protocol Converters

Many protocol converters have a self-test function or configuration mode that enables the user to check the proper functioning of the control. You can reconnect the host interface and ask the customer to exercise this function of the converter. If the printer receives data and prints it (even if the output is garbled) you have isolated the problem as one that belongs to the host or the protocol converter. The problem is not a printer problem and the customer must seek assistance elsewhere in resolving the problem.

Reading the Error Log

One of the sheets printed prior to the test pattern is the formatted error log maintained by the printer in a file named ERROR.LOG.

- The first line of the formatted log lists paper jams. A 3-digit error code (or codes) is followed by a 4-digit number indicating how many times the error has occurred since the error log was last cleared. (See [“Clearing the Error Log” on page 1-24.](#))
- The second line lists the last 15 errors.
- The last line indicates the last error that required a power-on-reset (POR).

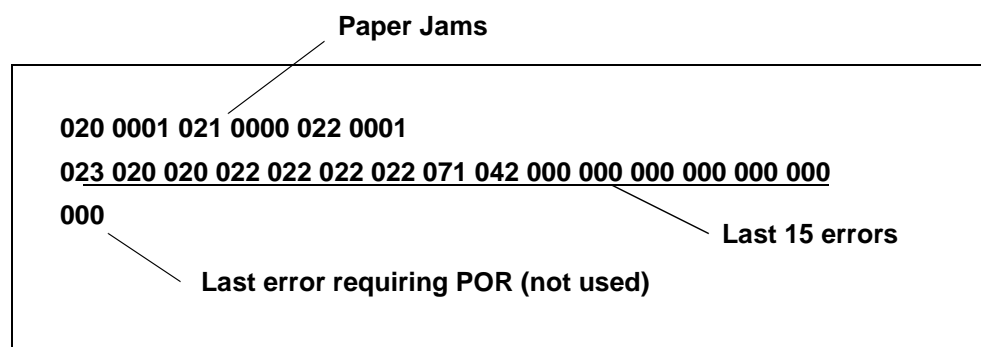


Figure 1-3. Sample Simplex Printer Error Log

Confirming Line Power

Erratic printer problems can be caused by improper line power. As a rule, the voltage of the outlet should be checked at installation. However, if you are unable to isolate an intermittent problem, the power should be checked again. Consult your country's national electric code for the proper procedures to check for acceptable voltages, as shown in [Table 1-3, "Acceptable Voltages"](#).

Table 1-3. Acceptable Voltages

Probe connections	100-127v printer	200-240v printer
red to AC hot black to AC neutral	120v +/- 10%	230v +/- 10%
red to AC neutral black to ground	3 vac or less	3 vac or less
red to AC hot black to ground	120v +/- 10%	230v +/- 10%

Please see [Chapter 5, "Diagnostic Tests"](#) for additional information about running diagnostic printer tests.

Please see [Chapter 6, "Wiring Diagrams and Electrical Data"](#) for additional information about the printer's electrical systems.

Using the Troubleshooting Analysis Guide (TAG)

The Troubleshooting Analysis Guide provides problem-solving sequences to help you identify and resolve printer problems. Each TAG addresses a particular symptom or error code of the printer. The TAG number often matches an error code displayed on the printer's operator panel.

Sample TAG

TAG 001: Troubleshooting a Problem	
Error Code: All related error messages are listed here.	
Possible Causes: All possible causes are listed here.	
Possible Defects: All possible defective parts are listed here. (In no particular order.)	
1	<p>To start:</p> <ul style="list-style-type: none">• Disconnect all peripheral cables• Power-on-reset the printer. <p>Did all of the status lights come on, followed by 888 flashing briefly and an error code?</p> <p>Yes: Run test prints, following the procedure outlined in Section 1, then repeat this step. If the answer is still no, refer to the mechanical malfunctions cross-reference chart in Section 2 to determine which TAG to follow. Then turn to that TAG.</p> <p>Yes: Note the error message and continue.</p>
2	<p>Power-on-reset the printer.</p> <p>Did the power-on-reset end with an error code?</p> <p>No: Continue.</p> <p>Yes: Refer to the error code cross-reference table in Section 2, using either the code that displayed after steps 1 and 2, or if multiple error codes continue to appear, the first error code that displays. Turn to the TAG associated with the code.</p>
3	<p>Did only the READY light come on with no numeric display?</p> <p>No: Continue</p> <p>Yes: Go to TAG 753</p>

Each TAG walks through a comprehensive procedure specific to a single problem. As you progress through a TAG and eliminate possible causes, you may be directed to another step out of sequence in the same TAG or to another TAG altogether.

The TAG number and its title may be followed by a listing of possible error messages, possible causes, or possible defective parts related to the TAG.

The TAG then directs you to perform certain tasks. Based on the results of these tasks, the TAG poses questions that can be answered by either yes or no. For yes answers, you follow one path; for no answers, follow another path. Some of the paths may lead you to other TAGs, so that you can methodically diagnose and resolve problems. When you have corrected a problem, you will be directed to TAG 002 to confirm that the problem has been completely resolved and standard cleanup procedures observed.

If it's not clear how to diagnose a problem you're working on, follow the steps outlined in TAG 001, which includes references to the cross reference tables contained in [Chapter 2, "TAG Cross- Reference Tables"](#). Or, you may turn directly to the tables to get started.

As you use TAGs, you will sometimes refer to other sections of this manual for additional information:

- [Chapter 4, "Print Quality Samples"](#) contains print quality samples you'll use to compare the customer's test prints with flawed and good print samples.
- [Chapter 5, "Diagnostic Tests"](#) outlines how to conduct printer diagnostic tests.
- [Chapter 6, "Wiring Diagrams and Electrical Data"](#) provides all wiring and connector diagrams.
- [Chapter 7, "Removal/Replacement Procedures"](#) provides step-by-step procedures for removing and replacing all field-replaceable parts on the printer.
- [Chapter 8, "Options"](#) reviews printer options (HCI, HCO) information.
- [Chapter 9, "General Printer Maintenance"](#) presents general printer maintenance procedures.

Standard Procedures

While using the TAGs, you may be asked to perform some of the following procedures. Specific instructions for completing these procedures are included here, rather than repeated in the body of each TAG. Please read this information before following any TAG.

Power-on-reset (POR)

When directed to power-on-reset the printer:

- 1 Turn off the printer.
- 2 Wait at least 5 seconds.
- 3 Turn the power back on.

Checking Continuity

Warning

Make sure the printer is turned off and the power disconnected. Failure to do so may result in personal injury, equipment damage, or both.

To perform a continuity check:

- 1 Turn off the printer and disconnect the power cord.
- 2 Set your meter to the lowest ohm setting.
- 3 Interpret the results as follows:
 - An infinite reading indicates an open circuit.
 - A zero or specific reading indicates continuity.
- 4 To check an open or short circuit to ground:
 - Turn off the printer and disconnect the power cord.
 - Locate the circuit in question. (Refer to [Chapter 6, “Wiring Diagrams and Electrical Data”](#), for circuit locations.)
 - Check all connectors and wiring on each side for corrosion, foreign objects, bent pins, loose socket housings, and/or loose wires.

Warning

The printer is equipped with safety interlock switches on all of its covers. These switches disable parts of the printer when the covers are opened. These areas present the risk of electrical shock, burns, and injury from mechanical hazards.

Installing the Interlock By-pass Tool

The interlock by-pass tool overrides the cover interlock switches, allowing you to operate the printer with the covers open. The interlock by-pass tool is a white plastic, “V”-shaped tool with two finger pads. To use the tool, open the cover and locate the interlock switch (for locations, see illustrations beginning [page 1-11](#)). Squeeze the tool between thumb and fore finger and insert it into the interlock switch.

The printer ships with two spare interlock by-pass tools concealed behind the right cover. Replace them when you are finished using them.

Caution

Do not attempt to close the printer cover while the interlock bypass tool is in place.

Producing a Developed Image

Producing a developed image helps determine where exactly in the print cycle a problem may be occurring. To produce a developed image:

- 1 Open the top cover and install an interlock by-pass tool.
- 2 Power-on-reset the printer.
- 3 Run a series of test prints. The directory of the boot device will print, followed by continuous test patterns.
- 4 As test patterns print, observe paper moving from the upper paper tray to the paper timing roller where it pauses briefly.
- 5 When a sheet of paper begins to move from the paper timing roller, turn off the printer.
- 6 Remove the photoconductor unit.
- 7 Examine the photoconductor belt to verify that a developed image was produced.

Producing a Toner Patch

To produce a toner patch:

- 1 Turn off the printer.
- 2 Open the top cover and install an interlock by-pass tool.
- 3 Turn on the printer.
- 4 Start running test prints using Simplex Print mode. When the leading edge of the first print enters the fuser unit, remove the interlock by-pass tool.

- 5 Remove the photoconductor unit.

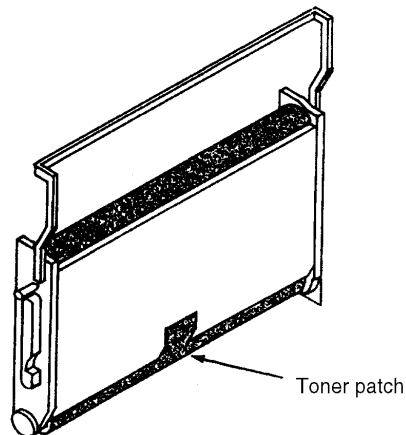


Figure 1-4. Producing a Toner Patch on the Photoconductor Unit

- 6 Examine the photoconductor unit to verify that a toner patch has been produced. You may have to rotate the belt slightly to observe the patch.

Caution

Do not touch the surface of the photoconductor belt; this damages the belt and results in poor print quality.

Completing a Service Call

After resolving any printer problem, complete the service call as follows:

- 1 Reassemble the printer.
- 2 Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
- 3 If you have removed the printer’s diskette(s), reinstall them.
- 4 Power-on-reset the printer.
- 5 Clear the error log. (See the procedure described next.)
- 6 Run test prints in both the simplex and duplex mode from both the upper and lower paper cassettes.
- 7 Fill in the Repair/Maintenance log. Make sure the problem description and steps taken to resolve the problem are clearly documented.

Clearing the Error Log

- 1** Enter the diagnostic mode of the printer:
 - Turn off the printer and wait 5 seconds.
 - Hold down the STOP and TEST keys simultaneously as you turn the printer back on.
 - The tone, followed by “00” on the display, indicates you are in the test mode. This takes approximately 1 minute.
- 2** Press: CANCEL to advance the counter to “110.”
- 3** Press READY to activate the procedure. “0” appears on the display, indicating the A: drive.
- 4** Press: CANCEL to advance to the drive where the error log is maintained. This is usually the boot drive.

Table 1-4. Drive Indication

Display	Indication
0	Diskette drive A:
1	Diskette drive B:
2	Hard drive C:

- 5** Press: READY to select the drive specified. “1-0” appears on the display.

Caution

At this point, be careful! “1-0” represents the clear error log function. Do not advance the counter to “1-1,” which represents the format disk option.

- 6** Press: READY to select the clear error log function. “6-0” appears on the display.

Caution

If “7-0” appears, press STOP immediately. DO NOT CONTINUE WITH THIS PROCEDURE. POR the printer and start over.

- 7** Press: CANCEL to clear the error log. “6-1” appears on the display.
- 8** Press: STOP to exit the procedure.
- 9** Cycle printer power to exit diagnostic mode.
- 10** Confirm that the error log has been cleared. When you run your test prints, check to make sure the error log entries appear as “0000.”

TAG Cross- Reference Tables

TAG Cross-Reference Tables

TAG Cross-Reference Tables

This section contains the three cross reference charts for troubleshooting print problems:

Error Code/TAG Cross-Reference Chart2-3

Print Quality/TAG Cross-Reference Chart2-9

Mechanical Malfunction/TAG Cross-Reference Chart2-12

Error Code/TAG Cross-Reference

Error codes, which appear on the 3-digit display of the operator's panel, indicate a wide variety of printer problems related to the control boards, software, and/or host communication problems. On the chart find the error code in question, then turn to TAG associated with the code.

Table 2-1. Printer Error Codes

Code	Printer Error Code Meaning	Go to TAG
010	Upper paper tray out of paper	010
011	Lower paper tray out of paper	011
E10	Envelope feeder out of envelopes	E10
012	Upper paper tray not plugged in	012
013	Lower paper tray not plugged in	013
E12	Envelope feeder not plugged in	E12
020	Upper paper tray paper jam	020
021	Lower paper tray paper jam	021
022	Transfer or fuser area paper jam	022
023	Exit area paper jam	023
025	Transfer or fuser area paper jam not cleared	025
026	Exit area paper jam not cleared	026
027	Duplex area paper jam	902
030	Developer bias short	030
031	Toner patch sensor reference level too low	031
032	Toner patch sensor black patch too light	032
035	No toner	035
036	No developer	036
040	Photoconductor seam sensor malfunction	040
041	Photoconductor seam sensor short	040
042	Photoconductor seam sensor open	040
044	Main charger open	044
045	Main charger short	045
046	Main charger open	044
050	Transfer charger short	050
055	Eraser lamp malfunction	055
057	Fan stopped sensor	752
060	Duplex area 1 paper jam	902
061	Duplex area 2 paper jam	902
062	Duplex area 3 paper jam	902
069	Duplex tray not plugged in	900
070	Fuser lamp or thermal fuse malfunction	070

Table 2-1. Printer Error Codes (Continued)

Code	Printer Error Code Meaning	Go to TAG
071	Fuser thermistor open or no fuser	071
072	Fuser temperature too high	072
073	Fuser temperature too low	070
081	No front job offset sensor	083
082	No back job offset sensor	083
083	Job offset mechanism malfunction	083
084	Duplex tray registration sensor not activated	901
085	Duplex tray registration sensor not deactivated	901
086	Duplex registration tray malfunction	901
090	Cover open	900
097	DC +12v power failure	097
098	DC -12v power failure	098
099	DC +24v power failure	099
100	PCL board command timeou	100
101	IGS controller diagnostic failure	101

Table 2-2. PCL/IGS Communication Error Codes

Code	PCL/IGS Communication Error Code Meaning	Go to TAG
121	No controller command; PCL board VSC command asserted	201
122	Command tag asserted; VSC command not asserted	201
123	VSS not asserted; PCL board status tag asserted	201
124	VSS asserted after PCL board sent status	201
125	VSS not asserted again though PCL board expects it	201
126	Command tag asserted during data byte sequence	201
127	PCL board detected parity/overrun on command line	201

Table 2-3. PCL Error Codes

Code	PCL Error Code Meaning	Go to TAG
130	Address or length error at initial microcode load	130
131	Checksum error at initial microcode load	130
132	RAM error at initial microcode load	100
133	No next block at initial microcode load	130
134	Incorrect format in initial microcode load file	130
140	PCL board ROM checksum error at power on diagnostic	100
145	PCL board RAM error at power on diagnostic	100

Table 2-3. PCL Error Codes (Continued)

Code	PCL Error Code Meaning	Go to TAG
160	PCL board PIA1 register error after reset	100
161	PCL board PIA1 registers read/write error	100
162	PCL board PIA1 PA or PB read/write error	100
170	PCL board PIA2 register error after reset	100
171	PCL board PIA2 register read/write error	100
172	PCL board PIA2 PB read/write error	100
180	PCL board PTM register error after reset	100
181	PCL board PTM read/write error	100
182	No IRQ generation on PTM	100

Table 2-4. PCL/IGS Communication Error Codes

Code	PCL/IGS Communication Error Code Meaning	Go to TAG
199	VSS not asserted before communication test	201
200	Status tag not asserted	201
201	Timeout waiting for a failed IGS controller	201
202	No data received after VSS line asserted	201
203	VSS asserted after PCL board sent status	201
204	Status tag asserted after VSS not asserted	201
205	No command tag after status tag not asserted	201
206	VSC command not asserted after command tag asserted	201
207	No data received after VSC asserted	201
208	VSC command asserted after command line asserted	201
209	Command tag asserted after VSC not asserted	201
210	No RQI after "request RQI" command	201
211	Parity error on command line	201
212	Parity or overrun sensed by PCL board	201
213	Incorrect command received from PCL board	201
214	Incorrect command received from IGS controller	201
215	No transfer buffer empty on asynchronous communications interface adapter after PCL board sent data	201

Table 2-5. IGS Firmware Error Codes

Code	IGS Firmware Error Code Meaning These error codes signal a problem with the IGS controller firmware. No TAGs address these problems; report them to the printer's manufacturer.	Go to TAG
301	Status received after VSS asserted	No TAG
302	Status tag asserted after VSS not asserted	No TAG
303	VSC command not asserted after command tag asserted	No TAG
304	VSC command asserted after data was sent	No TAG
305	VSC command not asserted for next data byte	No TAG
306	Status tag asserted while data was being sent	No TAG
307	Parity error on command line	No TAG

Table 2-6. PCL Failure Error Codes

Code	PCL Failure Error Code Meaning	Go to TAG
380	PCL board failure - command retries	201
381	PCL board failure - command rejected	201
382	PCL board failure - bad command received	201
383	PCL board failure - unexpected byte received	201
384	PCL board failure - no status received	201
385	PCL board failure - bad status information block count	201
386	PCL board failure - bad status information block offset	201
387	PCL board failure - parity error	201
389	Floppy disk retry	130

Table 2-7. IGS Software Error Codes

Code	IGS Software Error Code Meaning These error codes signal a problem with the IGS controller software. No TAGs address these problems; to determine whether the faulty software is the customer's or the manufacturer's, contact the printer's manufacturer.	Go to TAG
397	IGS software trap	No TAG
398	IGS software trap	No TAG
399	IGS software trap	No TAG

Table 2-8. IGS/Disk Drive Error Codes

Code	Disk Drive Error Code Meaning	Go to TAG
401	Fatal IGS PB error	No TAG
450	Incorrect diskette	130
451	Diskette format error or incorrect disk	130
454	Fatal trap	200
455	Trap	200
500	Incorrect PIT0 registers contents; no reset	200
501	PIT0 register read/write error	200
502	No countdown/zero detection in PIT0 timer	200
503	PIT0 timer; no halt	200
504	No PIT0 timer interrupt	200
505	Incorrect PIT2 registers contents; no reset	200
506	PIT2 register read/write error	200
507	No countdown/zero detection in PIT2 timer	200
508	PIT2 timer; no halt	200
509	No PIT2/timer interrupt	200
520	No DMAC reset	200
521	DMAC registers read/write error	200
522	No DMA transfer	200
523	No DMA transfer termination	200
524	No DMAC termination interrupt	200
525	No software abort operation	200
526	No software abort interrupt	200
527	DMAC operation error	200
528	DMA transfer error	200
529	Two-channel DMA transfer error	200
530	No two-channel DMA transfer	200
540	PCL board serial controller registers read/write error	200
541	PCL board break condition detected	200
542	PCL board serial controller transmitter not ready	200
543	No PCL board serial controller transfer	200
544	PCL board serial controller transfer error	200
545	Host serial controller registers read/write error	200
546	Host transmitter not ready	200
547	No serial controller interrupts	200
548	Host serial controller/PCL board parity error	200
549	Serial controller unexpected interrupt	200

Table 2-8. IGS/Disk Drive Error Codes (Continued)

Code	Disk Drive Error Code Meaning	Go to TAG
550	Two-channel transfer error	200
551	No PCL board/serial controller interrupt on break	200
552	No serial controller/DMAC interaction	200
553	Serial controller/DMAC transfer count error	200
554	Serial controller/DMAC transfer error	200
555	RS232 send/receive path error	200
556	RS232 DTR/DTC path error	200
557	RS232 RTS/CTS path error	200
558	RS422 send/receive path error	200
559	RS422 send clock/receive clock path error	200
560	CRTC register read/write error	200
561	No page begin (PIT2) interrupt	200
562	No CRTC address generation	200
563	No VSYNC generation (end of page)	200
564	No end of page (PIT2) interrupt	200
565	No CRTC count termination	200
566	VSYNC timeout error	200
570	Drive controller/SCSI read/write error	200
571	Drive controller busy timeout	200
572	Diskette is write protected	130
573	Drive not ready	130
574	Drive controller restore error	130
575	Drive controller seek error	130
576	Drive controller read sector error	130
577	Drive controller read sector data/checksum error	200
578	Drive controller write sector error	200
579	Drive controller read/modify/write error	200
580	No drive controller/PIT0 interrupt	200
581	No drive controller-DMA interaction	200
582	Drive controller/DMAC transfer error	200
583	Drive controller/DMAC transfer count error	200
584	Drive controller/DMAC read sector error	200
585	Drive controller/DMAC write sector error	200
586	Drive hard error	130

Table 2-9. Bit Map RAM Error Codes

Code	Bit Map RAM Error Code Meaning	Go to TAG
600	Bit-map RAM data path error	200
601	Bit-map RAM bank selection error	200
602	Bit-map RAM refresh error	200
603	Bit-map RAM address path error	200
604	Incorrect ALU operation in bit-map RAM data path	200
605	Incorrect origin data modifications	200
606	Total bit-map RAM bank fault	405
610	Bit-map RAM chip error	405

Table 2-10. Host Communication Error Codes

Code	Host Communication Error Code Meaning	Go to TAG
701	No communication with host	753
702	Host communication protocol error	753
703	Host communication recoverable error	753
770-784	Ethernet communication error	No TAG; contact software support

Print Quality/TAG Cross-Reference

Poor quality prints are another indication of printer problems. Begin by running a set of test prints. Then, compare the test prints to the samples located in [Chapter 4, “Print Quality Samples”](#). The chart summarizes the possible print quality problems you may encounter and recommends a TAG to follow to address the problem.

Table 2-11. Blank Print TAGs

Blank Prints	Go to TAG
Complete	800
Partial	800
With dark horizontal bands	800

Print Quality/TAG Cross-Reference

Table 2-12. Light Print TAGs

Light Prints	Go to TAG
With carrier particles	801
With background	811
With voids/white spots	802
With light vertical streaks	803
With blank or white vertical lines	803
With light horizontal bands	804

Table 2-13. Dark Print TAGs

Dark Prints	Go to TAG
Dark black prints	805
With dark spots or scratches	806
With dark blotches	810
With dark vertical streaks (without fusing)	812
With dark vertical streaks (with fusing)	808

Table 2-14. Skewed Path TAGs

Skewed Prints	Go to TAG
Simplex	807
Duplex	901

Table 2-15. Misregistration TAGs

Misregistered Prints	Go to TAG
Simplex	807
Duplex	901

Print Quality/TAG Cross-Reference

Table 2-16. Smeared, Blurred, and Uneven Print TAGs

Smeared, Blurred, Uneven Prints	Go to TAG
Smeared vertical streaks	809
Blurred prints	809
Uneven density	810
Prints with background	811
Prints with background and residual images	811
Prints with residual images	813
Prints with offset images	814

Table 2-17. Additional Print Quality Problem TAGs

Additional Print Quality Problems	Go to TAG
Wrinkled or torn prints	706
Prints improperly fused	812
Prints exhibiting printhead problems	815

Mechanical Malfunction/TAG Cross-Reference

The chart below outlines possible mechanical malfunctions and recommends an appropriate TAG to follow to resolve the problem.

Table 2-18. Operator Panel Problems TAGs

Operator Panel Problems	Go to TAG
Blank with AC power fan and cooling fan on	500
Blank with AC power fan on	500
Blank with no fans on	600
All lights on	610
Incomplete display immediately after POR	610
Close cover light remains on	600
Remove prints light remains on or lights	700
Add toner light remains on	035
Machine check light is on with no numerical Display	201
One or more lights are off at POR	610
Tone not working	610
Incorrect paper size	702
Other operator panel malfunctions	610

Table 2-19. Output Tray Problem TAGs

Output Tray Problems	Go to TAG
Sensor not sensing condition	701
Jogging incorrectly	083
Will not stop jogging	083
Job offset incorrect	083

Table 2-20. Cassette Problem TAGs

Cassette Problems	Go to TAG
Upper cassette	703
Lower cassette	704

Table 2-21. Paper Handling Problem TAGs

Paper Handling Problems	Go to TAG
Multiple paper feed	705
Multiple sheet feeds and jams	705
Wrinkled or torn paper	706
Simplex: misregistration and paper skew	807
Duplex: misregistration and paper skew	901
Paper will not feed from upper cassette	012
Paper jam in duplex area	902
Upper paper guide not closing	707

Table 2-22. Counter Problem TAGs

Counter Problems	Go to TAG
Supplies seem to have short life span	750
Incorrect counting	750

f

Table 2-23. Communication Problem TAGs

Communication Problems	Go to TAG
Printer will produce test prints	753
Incorrect data being printed	753

Table 2-24. Additional Mechanical Malfunction TAGs

Additional Mechanical Malfunctions	Go to TAG
Test prints won't run after POR	130
Cooling fan not running	752
Vacuum transport unit fan not running	752
Circuit breaker trip	600
Main drive motor not turning off	751

Print Quality/TAG Cross-Reference

***Troubleshooting
Analysis Guide
(TAGs)***

Contents

Troubleshooting Analysis Guide (TAGs)

TAG 001: Troubleshooting a Problem	3-5
TAG 002: Check & Problem Resolution	3-8
TAG 010: Upper Cassette Malfunction	3-12
E10: Envelope Tray Out of Envelopes	3-14
TAG 011: Lower Cassette Malfunction	3-16
TAG 012: Upper Cassette Not Latched	3-18
TAG E12: Envelope Tray or Feeder Not Latched	3-21
TAG 013: Lower Cassette Not Latched	3-24
TAG 020: Paper Jam/Misfeed in Upper Cassette Area	3-26
TAG 021: Paper Jam/Misfeed in /Lower Cassette Area	3-30
TAG 022: Paper Jam in the Transfer or Fuser Area	3-34
TAG 023: Paper Jam in the Output Area	3-39
TAG 025: Paper in Input Area Before Printing	3-41
TAG 026: Paper in Output Area Before Printing	3-43
TAG 030: Developer Bias Short/Failure	3-44
TAG 031: Toner Patch Reference Level Too Low	3-47
TAG 032: Toner Patch Too Light	3-49
TAG 035: Out of Toner or ADD TONER Indicator On	3-51
TAG 036: =Developer Unit Not Installed	3-53
TAG 040: Photoconductor Seam Sensor Malfunction	3-54
TAG 044: Main Charger/Transfer Charger Circuit Open	3-58
TAG 045: Main Charger Circuit Shorted	3-61
TAG 050: Transfer Charger Circuit Shorted	3-63
TAG 055: Erase Lamp Malfunction	3-65
TAG 070: Fuser Unit Malfunction	3-67
TAG 071: Open Fuser Thermistor	3-72
TAG 072: Fuser Unit Temperature Too High	3-73
TAG 083: Job Offset Mechanism Malfunction	3-75
TAG 097: +12 Vdc Power Shorted or Sensing Problem	3-79
TAG 098: -12 Vdc Power Shorted	3-90
TAG 099: +24 Vdc Power Shorted	3-92
TAG 100: PCL Board Interface Malfunction	3-102

TAG 101: IGS Controller Diagnostic Failure	3-103
TAG 130: Diskette/Disk Drive Malfunction	3-104
TAG 200: IGS Internal Communication Malfunction.	3-108
TAG 201: IGS-PPCL Interface Malfunction.	3-110
TAG 405: IGS Bit-Map RAM Malfunction	3-112
TAG 500: +5 Vdc Power Malfunction	3-113
TAG 600: Vac Power Malfunction	3-118
TAG 610: Operator Panel Malfunction	3-125
TAG 700: Output Tray Circuit Malfunction	3-130
TAG 702: Paper Size Detection Malfunction	3-132
TAG 703: Upper Cassette Malfunction.	3-135
TAG 704: Lower Cassette Malfunction.	3-136
TAG 705: Multiple Paper Feeding	3-137
TAG 706: Paper Damaged or Wrinkled	3-138
TAG 707: Upper Paper Guide Assembly Not Closing	3-139
TAG 750: Counter Malfunction.	3-140
TAG 751: Main Drive Motor Runs Continuously.	3-142
TAG 753: External Communications Malfunction	3-143
TAG 754: Attachment Option Malfunction.	3-146
TAG 800: Prints Blank or With Dark Horizontal Bands.	3-148
TAG 801: Prints Light or Light With Carrier Particles	3-152
TAG 802: Prints With Voids or White Spots	3-158
TAG 803: Prints With Light or White Vertical Streaks	3-160
TAG 804: Prints With Light Horizontal Bands.	3-162
TAG 805: Black Prints.	3-163
TAG 806: Prints with Dark Spots or Scratches	3-166
TAG 807: Misregistered/Skewed Prints (Simplex).	3-168
TAG 808: Prints Overtone/Dark Vertical Streaks	3-172
TAG 809: Blurred or Smeared Vertical Streaks on Prints.	3-177
TAG 810: Uneven Density or Dark Areas on Prints	3-180
TAG 811: Background/Residual Images/Dark Prints	3-182
TAG 812: Uneven or No Fusing on Prints	3-187
TAG 813: Residual Images on Prints	3-189
TAG 815: Prints Resulting From Printhead Malfunctions	3-191
TAG 900: Top Cover Interlock Malfunction, Duplex.	3-192
TAG 901: Misregistration/Skewed Prints (Duplex)	3-194
TAG 902: Paper Jam in Duplex Area	3-198

Troubleshooting Analysis Guide (TAGs)

This chapter describes each of the TAGs used to diagnose and resolve specific printer problems related to error codes, print quality, and mechanical malfunctions.

[Chapter 1, “Printer and Troubleshooting Overview”](#), is an overview of how the TAGs are organized and how to use them. If you are using a TAG for the first time, please refer to this chapter for more specific instructions.

[Chapter 2, “TAG Cross- Reference Tables”](#), provides comprehensive tables which cross reference specific error codes, print quality problems, and mechanical malfunctions to the TAGs contained in this chapter.

As you use these TAGs, you may need to refer to other chapters of this manual for additional information. Please turn to these chapters as required.

TAG 001: Troubleshooting a Problem

If you are not sure how to troubleshoot a printer problem, start with this TAG. This and all TAGs assume you are familiar with standard procedures, such as power-on-reset, presented in [Chapter 1, “Printer and Troubleshooting Overview”](#). In addition, TAG may refer you to [Chapter 2, “TAG Cross- Reference Tables”](#), which contain:

- Error code cross-reference table
Arranged by error code; refers you to the TAG associated with the code.
- Print quality cross-reference table
Arranged by description of print-quality problem; refers you to the TAG associated with the problem.
- Mechanical malfunction cross-reference table
Arranged by description of the mechanical malfunction; refers you to the TAG associated with the malfunction.

1

To start:

- Disconnect all peripheral cables.
- Power-on-reset the printer.

Did all of the status lights come on, followed by 888 flashing briefly and an error code?

No: Run test prints, following the procedure described in [Chapter 1, “Printer and Troubleshooting Overview”](#), then repeat this step. If the answer is still no, refer to the mechanical malfunctions cross-reference table in [Chapter 2, “TAG Cross- Reference Tables”](#) to determine which TAG to follow. Then turn to that TAG.

Yes: Note the error code and continue.

2

Power-on-reset the printer.

Did the power-on-reset end with an error code?

No: Continue.

Yes: Refer to the error code cross-reference table in [Chapter 2, “TAG Cross- Reference Tables”](#), using either the code that displayed after steps 1 and 2, or if multiple error codes continue to appear, the first error code that displays. Turn to the TAG associated with the code.

3

Did only the READY light come on with no numeric display?

No: Continue.

Yes: Go to [TAG 753: External Communications Malfunction](#).

4

Did only the READY and ON LINE lights come on with no numeric display?

No: Continue.

Yes: Go to [TAG 753: External Communications Malfunction](#).

5

Did the READY, ON LINE, and JOB IN PROCESS lights come on with no numeric

display?

No: Refer to [Chapter 2, “TAG Cross- Reference Tables”](#) to determine which TAG to follow, then turn to that TAG.

Yes: Continue.

6

Run test prints from the upper cassette by completing the following:

- Power-on-reset the printer.
- Run test prints from the upper cassette.

Did an error code appear while running the prints?

No: Continue.

Yes: Look up the code in [Chapter 2, “TAG Cross- Reference Tables”](#) to determine which TAG to follow, and then turn to that TAG.

7

Run test prints from the lower cassette by completing the following:

- Press STOP and allow the cycle to finish.
- Remove the upper cassette.
- Power-on-reset the printer.
- Run test prints from the lower cassette.

Did an error code appear while running test prints?

No: Continue.

Yes: Look up the code in [Chapter 2, “TAG Cross- Reference Tables”](#) to determine which TAG to follow, then turn to that TAG.

8

Check communications by completing the following:

- Turn the printer off.
- Reinstall all communication cables.
- Reinstall the upper cassette.
- Power-on-reset the printer.
- Re-run the customer’s problem print job.

Does the job fail?

No: Continue.

Yes: Go to [TAG 753: External Communications Malfunction](#).

9

Complete the following:

- Run test prints.
- Re-run the customer’s problem print job.

Does an error code appear?

No: Continue.

Yes: Look up the code in [Chapter 2, “TAG Cross- Reference Tables”](#), then turn to TAG indicated in the table.

10

Run a job which is known to be good.

- Compare the output from the problem print job to the output from the good print job.

Can you identify the problem?

No: Return to the beginning of the TAG, following the procedures carefully to determine the kind of problem your customer has.

Yes: Identify the problem as either a print quality problem or a mechanical malfunction, find the problem in the appropriate cross-reference table, identify a TAG addressing that problem, then turn to that TAG.

TAG 002: Check & Problem Resolution

Note

Follow the procedure described in this TAG when you have completed an action to resolve a problem, and are sent to this TAG from another TAG

1 Complete any actions directing you to this TAG.

- Make sure all connectors, covers, parts, and hardware have been reinstalled.

In the course of resolving the printer problem, did you complete the every-call cleaning procedure?

No: Continue.

Yes: Go to #3 in this TAG.

2 Clean the printer thoroughly, following the every-call cleaning procedure described below.

1 Remove these major printer supplies:

- Photoconductor unit; place it in its protective packaging
- Cleaner unit
- Developer unit
- Fuser unit

2 Inspect and vacuum the printer:

- Inspect the areas in the printer around the developer unit, cleaner unit, photoconductor unit, and fuser unit for damage and wear.
- Vacuum these areas to remove all excess toner, contamination, and/or foreign objects.

3 Clean internal areas:

- Clean the erase lamp with a cotton swab.
- Clean the printhead bias plates with a soft cloth.
- Clean the LED lens with a cotton swab, making sure no lint remains on the lens.

4 Inspect and clean the fuser unit:

Warning

The fuser unit may be hot

- Inspect the unit for damage and contamination; repair or replace as necessary.
- Clean the fuser unit connector, both on the fuser unit and in the printer, with a cotton swab.
- Vacuum in and around the rollers to remove excess toner, contamination, and any foreign objects.
- Reinstall the fuser unit.

5 Inspect and clean the developer unit:

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Clean any excess toner from the developer unit with a soft cloth.
- Clean the toner patch sensor lens with a cotton swab, making sure no lint remains on the lens.
- Vacuum the felt areas around the magnetic roller, being careful not to vacuum toner from

- the magnetic roller.
- Reinstall the developer unit.

6 Inspect and clean the cleaner unit/main charger:

Caution

Handle gently to avoid breaking the charger wire

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Remove the main charger from the cleaner unit.
- Clean the grid with the cleaner brush.
- Remove the grid to expose the charger wire.
- Clean the charger wire with a cotton swab or charger cleaning tool.
- Reinstall the grid.
- Clean any excess toner from the cleaner unit with a soft cloth.
- Reinstall the main charger in the cleaner unit.
- Reinstall the cleaner unit.

7 Clean and inspect the photoconductor unit area

Caution

**Do not touch the photoconductor belt as this
permanently damages the unit**

- Clean the photoconductor seam sensor inside the printer with a cotton swab or compressed air.
- Remove the photoconductor from its protective packaging.
- Inspect the photoconductor for damage or contamination; repair or replace as necessary.
- Reinstall the photoconductor unit.

8 Clean the transfer charger

Caution

Handle gently to avoid breaking the charger wire

- Remove the transfer charger.
- Clean the transfer charger housing with a soft cloth.
- Clean the transfer charger wire with a cotton swab.
- Reinstall the transfer charger.

Have you completed the every-call cleaning procedure?

No: Complete the procedure, then continue.

Yes: Continue.

-
- 3** Run test prints to confirm print quality, in both simplex and duplex modes and from upper and lower paper cassettes. When you enter test print mode by pressing the keys listed below, the following items print in the order listed: a directory of the boot device and multiple listings of fonts; a formatted and unformatted error log; a continuous flow of test prints.

1 Power-on-reset the printer.

2 Run test prints:

- For simplex printers, press:
STOP
TEST
- For duplex printers, press:
STOP
DUPLEX
TEST

3 Stop printing the pattern by pressing STOP. On pressing STOP, the printer will stop generating test prints. The printer will print all test prints stored in the printer's buffer, then stop.

Are the test prints clean and printing correctly?

No: Go to [Chapter 4, "Print Quality Samples"](#); identify a sample with the problem you see in the test print; then turn to the TAG indicated.

Yes: Continue.

-
- 4** Clear the error log:

Caution

With this procedure you can either clear the error log or format a disk. Pay careful attention to the options you select.

- 1** Enter the diagnostic mode of the printer:
- Turn off the printer and wait 5 seconds.
 - Hold down the STOP and TEST keys simultaneously as you turn the printer back on.
 - The tone, followed by 001 on the display, indicates you are in the test mode. This takes about 1 minute.
- 2** Press: CANCEL to advance the counter to 110.
- 3** Press: START to activate the procedure. 0 appears on the display, indicating the A: drive.
- 4** Press: CANCEL to advance to the drive where the error log is maintained. This is usually the boot drive.

Display	Indication
0	Diskette drive A:
1	Diskette drive B:
2	Hard drive C:

- 5 Press: START to select the drive specified. 1-0 appears on the display

Caution

1-0 represents the clear error log function. Do not advance the counter to 1-1, which represents the format disk option, described in the *Guide to Operations*

- 6 Press: START to select the clear error log function. 6-0 appears on the display.

Caution

If 7-0 appears, press STOP immediately. DO NOT PROCEED

- 7 Press: CANCEL to clear the error log. 6-1 appears on the display.
- 8 Press: STOP to exit the procedure.
- 9 Confirm that the error log has been cleared; to do this, power-on-reset the printer and run test prints, checking to make sure the error log entries appear as 0000.

Do the error log entries appear as 0000?

No: Return to the beginning of this step.

Yes: Continue.

-
- 5** Fill in the Repair/Maintenance record taped inside the printer's front cover.
- Make sure the problem description and steps taken to resolve the problem are clearly documented.
 - Reinstall all connectors, covers, parts, and hardware.

You have successfully resolved the printer's problem. Congratulations!

TAG 010: Upper Cassette Malfunction

Error Code: 010

Possible Causes: Cassette empty
Paper incorrectly loaded

Possible Defects: Upper paper empty actuator
Upper paper empty sensor
Upper cassette tray
Upper pressure lever
Upper cassette release cam
Upper cassette release latch
Upper cassette release lever
Spring
Connectors/wiring
PCL board

1

Make sure paper is in the upper cassette.

- Make sure the paper is loaded correctly so that the side and rear guides are positioned securely against the paper in the cassettes.
- Power-on-reset the printer.
- Run test prints.

Is error code 010 displayed?

No: The paper was loaded incorrectly. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2

Check upper cassette:

- Remove the upper cassette.
- Inspect the upper paper empty sensor actuator for binding, or for a damaged or broken part.

Is it in good working order?

No: Replace the actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

3

Check voltage:

- Open the rear door and install an interlock by-pass tool.
- Check the voltage from TP3-15 to ground on the PCL board.
- Activate the upper paper sensor actuator manually.

Does the voltage change from 0 Vdc to +12Vdc?

No: Replace the upper paper empty sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

4

Check pressure lever:

- Reinsert the upper cassette.
- Watch the pressure lever as the cassette is inserted.

Does the pressure lever elevate the paper to the correct feeding position?

No: Check the following for defects or incorrect mounting:

- Cassette tray
- Damper assembly
- Upper pressure lever
- Upper cassette release cam
- Upper cassette release latch
- Wire cable, pulley and spring
- Upper cassette release lever

Replace the defective part, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

E10: Envelope Tray Out of Envelopes

This TAG refers to the error code for the envelope tray, which handles 75 envelopes.

Error Code: E10
Possible Causes: Cassette empty
Envelopes incorrectly loaded
Possible Defects: Upper paper empty actuator
Upper paper empty sensor
Paper size sensor assembly
Envelope cassette tray
Upper pressure lever
Upper cassette release cam
Upper cassette release latch
Upper cassette release lever
Spring
Connectors/wiring
PCL board

-
- 1** Make sure envelopes are in the envelope cassette.
- Make sure the envelopes are correctly loaded.
 - Power-on-reset the printer.
 - Remove and insert the envelope cassette while watching the operator panel.

Does 1-8 appear on the operator panel?

No: Replace the upper paper size sensor assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 2** Run a job in which you are using envelopes.

Is error code E10 displayed?

No: The cassette was loaded incorrectly. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** Remove the envelope cassette.
- Inspect the paper empty sensor actuator.

Is it in good working order?

No: Replace the actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 4** Open the rear door and install an interlock by-pass tool.
- Check the voltage from TP3-15 to ground on the PCL board.
 - Activate the upper paper sensor actuator manually.

Does the voltage change from 0Vdc to +12Vdc?

No: Replace the upper paper empty sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

5

Reinsert the envelope cassette.

- Watch the pressure lever as the cassette is inserted.

Does the pressure lever elevate the envelopes to the correct feeding position?

No: Check the following for defects or incorrect mounting:

- Cassette tray
- Damper assembly
- Upper pressure lever
- Upper cassette release cam
- Upper cassette release latch
- Wire cable, pulley and spring
- Upper cassette release lever

Replace the defective part, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 011: Lower Cassette Malfunction

Error Code: 011
Possible Causes: Cassette empty
Paper incorrectly loaded
Possible Defects: Lower paper empty actuator
Lower paper empty sensor
Lower cassette tray
Lower pressure lever
Lower cassette release cam
Lower cassette release latch
Lower cassette release lever
Spring
Connectors/wiring
PCL board

-
- 1** Make sure paper is in the lower cassette.
- Make sure the paper is loaded correctly so that the side and rear guides are positioned securely against the paper in the cassettes.
 - Power-on-reset the printer.
 - Run test prints.

Is error code 011 displayed?

No: The paper was loaded incorrectly. Turn to [TAG 002: Check & Problem Resolution](#)

Yes: Continue.

-
- 2** Remove the lower cassette.
- Inspect the lower paper empty sensor actuator for binding, or for a damaged or broken part.

Is it in good working order?

No: Replace the actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** Open the rear door and install an interlock by-pass tool.
- Check the voltage from TP3-14 to ground on the PCL board.
 - Activate the lower paper sensor actuator manually.

Does the voltage change from 0 Vdc to +12Vdc?

No: Replace the lower paper empty sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

4

Reinsert the lower cassette.

- Watch the pressure lever as the cassette is inserted.

Does the pressure lever elevate the paper to the correct feeding position?

No: Check the following for defects or incorrect mounting:

- Cassette tray
- Lower pressure lever
- Lower cassette release cam
- Lower cassette release latch
- Wire cable, pulley and spring
- Lower cassette release lever

Replace the defective part, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 012: Upper Cassette Not Latched

Error Code: 012

Possible Defects: Upper cassette release cam
Upper cassette release latch
Upper cassette in latch
Upper pressure lever
Spring
Wire cable and pulley
Upper cassette
Upper cassette in switch
Upper paper size sensor
Lower paper size sensor
Connectors or wiring
PCL board

1

Turn off the printer and unplug the power cord.

- Verify that J/P40 and J/P52 are connected properly.
- Remove the upper cassette.
- Inspect it for damage.
- Reinsert the cassette.

Is the upper cassette properly latched?

No: Continue.

Yes: Go to #3 in this TAG.

2

Check for damage:

- Upper cassette release cam
- Upper cassette release latch
- Upper cassette in latch
- Upper pressure lever
- Spring
- Wire cable and pulley

Are any of these parts damaged?

No: Return to the beginning of this TAG.

Yes: Replace the damaged parts, then turn to [TAG 002: Check & Problem Resolution](#).

3

Remove the upper cassette.

- Make sure the upper cassette in switch actuator is functioning properly.

Is it in good working order?

No: Replace the actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 4** Run diagnostic test 002.
- Is 1-0 displayed?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 5** Install the upper cassette.
- Is a value other than 1-0 displayed?**
- No:** Continue.
- Yes:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 6** Turn the printer off and unplug the power cord.
- Remove the upper cassette.
 - Loosen the upper paper size sensor assembly for access to the circuit board.
 - Disconnect J/P46.
 - Activate the cassette in switch.
 - Check P46-1 to P46-2 for continuity.
- Is there continuity?**
- No:** Replace the upper cassette in switch or wire harness W58, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 7** Reconnect J/P46.
- Disconnect J/P40 and J/P45.
 - Check P40-49 to P45-2 for continuity.
- Is there continuity?**
- No:** Go to #10 in this TAG.
- Yes:** Continue.
-
- 8** Check P40-48 to P45-3 for continuity.
- Is there continuity?**
- No:** Continue.
- Yes:** Replace the upper paper size sensor assembly. If this does not resolve the problem, replace the PCL board. Turn to [TAG 002: Check & Problem Resolution](#).
-

9

Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-8 to J47-3 for continuity.

Is there continuity?

No: Replace lower paper size sensor assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from:

P45-3 to P47-3,
P43-8 to J52-3, or
P40-48 to P52-3.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to [TAG 002: Check & Problem Resolution](#)

10

Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-9 to J47-2 for continuity.

Is there continuity?

No: Replace the lower paper size sensor assembly.

Yes: Repair or replace the connectors or wiring from:

P45-2 to P47-2,
P43-9 to J52-2 or
P40-49 to P52-2.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to [TAG 002: Check & Problem Resolution](#)

TAG E12: Envelope Tray or Feeder Not Latched

Error Code: E12
Possible Defects: Upper cassette release cam
Upper cassette release latch
Upper cassette in latch
Upper pressure lever
Spring
Wire cable and pulley
Envelope cassette or high capacity envelope feeder
Upper cassette in switch
Upper paper size sensor
Lower paper size sensor
Connectors or wiring
PCL board

-
- 1** Turn off the printer and unplug the power cord.
- Confirm that J/P40 and J/P52 are connected properly.
 - Remove the envelope tray or high capacity envelope feeder.
 - Inspect it for damage.
 - Reinsert the envelope tray or feeder.

Is the upper cassette properly latched?

No: Continue.

Yes: Go to #3 in this TAG.

-
- 2** Check for damage:
- Upper cassette release cam
 - Upper cassette release latch
 - Upper cassette in latch
 - Upper pressure lever
 - Spring
 - Wire cable and pulley

Are any of these parts damaged?

No: Return to the beginning of this TAG.

Yes: Replace the damaged parts, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 3** Remove the envelope tray or feeder.
- Make sure the upper in switch actuator is functioning properly.

Is it in good working order?

No: Replace the actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

4

Run diagnostic test 002.

Is 1-0 displayed?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

5

Install the envelope tray.

Is a value other than 1-0 displayed?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

6

Turn the printer off and unplug the power cord.

- Remove the envelope tray or feeder.
- Loosen the upper paper size sensor assembly for access to the circuit board.
- Disconnect J/P46.
- Activate the cassette in switch.
- Check P46-1 to P46-2 for continuity.

Is there continuity?

No: Replace the upper cassette in switch or wire harness W58, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7

Reconnect J/P46.

- Disconnect J/P40 and J/P45.
- Check P40-49 to P45-2 for continuity.

Is there continuity?

No: Go to #10 in this TAG.

Yes: Continue.

8

Check P40-48 to P45-3 for continuity.

Is there continuity?

No: Continue.

Yes: Replace the upper paper size sensor assembly. If this does not resolve the problem, replace the PCL board. Then turn to [TAG 002: Check & Problem Resolution](#).

9

Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-8 to J47-3 for continuity.

Is there continuity?

No: Replace the lower paper size assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from:
P45-3 to P47-3,
P43-8 to J52-3, or
P40-48 to P52-3.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to [TAG 002: Check & Problem Resolution](#).

10

Reconnect J/P40 and J/P45.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P43 and J/P47.
- Check J43-9 to J47-2 for continuity.

Is there continuity?

No: Replace the lower paper size sensor assembly.

Yes: Repair or replace the connectors or wiring from:
P45-2 to P47-2,
P43-9 to J52-2, or
P40-49 to P52-2.

If this does not resolve the problem, replace the upper paper size sensor assembly. Then turn to [TAG 002: Check & Problem Resolution](#).

TAG 013: Lower Cassette Not Latched

Error Code: 013

Possible Defects: Lower cassette release cam
Even Lower cassette release latch
Lower cassette in latch
Lower pressure lever
Spring
Lower cassette
Lower cassette in switch
Lower paper size sensor
Connectors or wiring
PCL board

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P40 and J/P52 are connected properly.
 - Remove the lower cassette.
 - Inspect it for damage.
 - Reinsert the cassette.

Is the lower cassette properly latched?

No: Continue.

Yes: Go to #3 in this TAG.

-
- 2** Check the following for damage:
- Lower cassette release cam
 - Lower cassette release latch
 - Lower cassette in latch
 - Lower pressure lever
 - Spring

Are any of these parts damaged?

No: Return to the beginning of this TAG.

Yes: Replace the damaged parts, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 3** Remove the lower cassette.
- Make sure the lower cassette in switch actuator is functioning properly.

Is it in good working order?

No: Replace the actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 4** Run self diagnostic test 003.

Is 1-0 displayed?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

5

Install the lower cassette.

Is a value other than 1-0 displayed?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

6

Turn the printer off and unplug the power cord.

- Remove the lower cassette.
- Loosen the lower paper size sensor assembly for access to the circuit board.
- Disconnect J/P48.
- Activate the cassette in switch.
- Check P48-1 to P48-2 for continuity.

Is there continuity?

No: Replace the lower cassette in switch or wire harness W59, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7

Reconnect J/P48.

- Disconnect J/P43 and J/P40.
- Check P40-50 to P43-10 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P43-10 to J52-1 or P40-50 to P52-1. Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

8

Check P43-8 to P40-48 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P43-8 to J52-3 or P40-48 to P52-3. Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the lower paper size sensor assembly. If this does not resolve the problem, replace the PCL board. Then turn to [TAG 002: Check & Problem Resolution](#).

TAG 020: Paper Jam/Misfeed in Upper Cassette Area

Error Code: 020

Possible Causes: Paper incorrectly loaded
Wrong weight or type of paper loaded
Paper path obstructed

Possible Defects: Upper pick-up roller assembly
Upper feed roller assembly
Upper pick-up roller drive assembly
Upper paper guide assembly
Lower paper guide assembly
Upper paper cassette
Pick pressure adjustment
Main drive gear assembly
Paper feed drive belt
Paper feed drive idler assembly
Paper timing sensor.
Wiring or connectors
PCL board

1

Check both paper paths and remove any paper jams.

- Make sure paper is loaded properly in both cassettes.
- Make sure the paper guides are positioned properly.
- Make sure the upper pick-up roller, feed roller, and pinch roller assemblies are clean.
- Verify that J/P40, J/P60, J/P66, and J/P68 are connected properly.
- Confirm that the paper in the cassettes meets paper specifications, described in the *Guide to Operations* manual.
- Power-on-reset the printer.
- Run test prints from the upper cassette.

Is error code 020 still displayed?

No: Go to #14 in this TAG.

Yes: Continue.

2

Turn the printer off and inspect the following for damage or binding:

- Upper paper guide assembly
- Lower paper guide assembly
- Paper feed drive belt
- Paper feed drive pulley
- Paper feed drive idler assembly
- Main drive gear assembly
- Upper pick-up roller drive assembly

Are all the parts in good working order?

No: Replace any damaged parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** Clear the paper path.
- Remove the upper cassette.
 - Power-on-reset the printer.
 - Run test prints from the lower cassette.

Is error code 021 displayed?

No: Go to #10 in this TAG.

Yes: Continue.

- 4** Clear the paper path.
- Inspect the paper timing sensor actuator for damage or binding.

Is it in good working order?

No: Replace the paper timing guide assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 5** Check the voltage between TP3-16 and ground on the PCL board.
- With the printer powered on, press and release the paper timing sensor.
 - Check for a voltage change from 0 Vdc to +12 Vdc.

Does the voltage change from 0 Vdc to +12 Vdc?

No: Go to #9 in this TAG.

Yes: Continue.

- 6** Check TP3-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Return to the beginning of this TAG.

- 7** Check J/P91-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

- 8** Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P91-1 to P8-13, then turn to [TAG 002: Check & Problem Resolution](#).

9

Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P57.
- Check the following for continuity:
 - P40-16 to P57-2
 - P40-25 to P57-1
 - P40-12 to P57-3

Is there continuity on all?

No: Repair or replace the connectors or wiring from P40-25 to J/P58-1 to P57-1, P40-16 to J/P58-2 to P57-2, or P40-12 to J/P58-3 to P57-3. Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the paper timing guide. If this does not resolve the problem, replace the PCL board. Then turn to [TAG 002: Check & Problem Resolution](#).

10

Turn the printer off.

- Open the back cover and install an interlock by-pass tool.
- Remove the paper feed cover to expose the upper paper pick roller assembly.

Warning

To avoid the risk of injury, use extreme caution as gears and belts are exposed

- Run diagnostic test 006, testing the upper pick-up roller clutch.
- Check TP3-9 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #12 in this TAG.

11

Turn off the printer and unplug the power cord.

- Disconnect J/P40 and J/P68.
- Check P40-9 to J68-2 and P40-11 to J68-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-9 to J68-2 or P40-11 to J68-1. Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the upper pick-up roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

12

Run diagnostic test 006, testing the upper feed roller clutch.

- Check TP3-6 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #14 in this TAG.

-
- 13** Turn off the printer and unplug the power cord.
- Disconnect J/P40 and J/P66.
 - Check P40-6 to J66-2 and P40-11 to J66-1 for continuity.
- Is there continuity?**
- No:** Repair or replace connectors or wiring from P40-6 to J66-2 or P40-11 to J66-1. Then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the upper feed roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 14** Inspect the upper pick-up roller assembly for damage or binding.
- Is it in good working order?**
- No:** Replace the upper pick-up roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 15** Inspect the upper feed roller assembly for damage or binding.
- Is it in good working order?**
- No:** Replace the upper feed roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** The upper pick-up roller or the feed rollers may not be delivering paper to the paper timing sensor at the correct time. Return to the beginning of this TAG.

TAG 021: Paper Jam/Misfeed in /Lower Cassette Area

Error Code: 021

Possible Causes: Paper loaded incorrectly
Wrong weight or type of paper loaded
Paper path obstruction

Possible Defects: Lower pick-up roller assembly
Lower feed roller assembly
Lower pick-up roller drive assembly
Upper paper guide assembly
Lower paper guide assembly
Lower paper cassette
Pick pressure adjustment
Main drive gear assembly
Idler assembly
Paper feed drive belt
Paper feed drive idler assembly
Paper timing sensor
Wiring or connectors
PCL board

1

Check both paper paths and remove any jams.

- Make sure paper is loaded properly in both cassettes.
- Make sure the paper guides are positioned properly.
- Check that the pick-up roller, feed roller, and backup roller assemblies are clean.
- Verify that J/P40, J/P62, J/P67, and J/P69 are connected properly.
- Confirm that the paper in the cassettes meets paper specifications, which are described in the *Guide to Operations* manual.
- Remove the upper cassette.
- Power-on-reset the printer.
- Run test prints from the lower cassette.

Is error code 021 displayed?

No: Go to #14 in this TAG.

Yes: Continue.

2

Turn the printer off and inspect the following for damage or binding:

- Lower paper guide assembly
- Upper paper guide assembly
- Paper feed drive belt
- Paper feed drive pulley
- Paper feed drive idler assembly
- Main drive gear assembly
- Lower pick-up roller drive assembly

Are all the parts in good working order?

No: Replace the damaged parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** Clear the paper path.
- Reinsert the upper cassette.
 - Power-on-reset the printer.
 - Run test prints from the upper cassette.

Is error code 020 displayed?

No: Go to #10 in this TAG.

Yes: Continue.

- 4** Clear the paper path.
- Inspect the paper timing sensor actuator for damage or binding.

Is it in good working order?

No: Replace the paper timing guide assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 5** Check the voltage between TP3-16 and ground on the PCL board.
- With the printer powered on, activate the paper timing sensor.
 - Check for a voltage change from 0 Vdc to +12 Vdc.

Does the voltage change from 0 Vdc to +12 Vdc?

No: Go to #9 in this TAG.

Yes: Continue.

- 6** Check TP3-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Return to the beginning of this TAG.

- 7** Check J/P91-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

- 8** Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P91-1 to P8-13, then turn to [TAG 002: Check & Problem Resolution](#).

- 9** Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P57.
- Check the following for continuity:
P40-16 to P57-2

P40-25 to P57-1
P40-12 to P57-3

Is there ground?

No: Repair or replace the connectors or wiring from:

P40-25 to J/P58-1 to P57-1,
P40-16 to J/P58-2 to P57-2, or
P40-12 to J/P58-3 to P57-3.

Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the paper timing guide. If this does not correct the problem, replace the PCL board. Then turn to [TAG 002: Check & Problem Resolution](#).

10

Turn off the printer.

- Open the back cover and install an interlock by-pass tool.
- Remove the paper feed cover to expose the lower paper pick-up assembly.

Warning

To avoid the risk of injury, use extreme caution as gears and belts are exposed

- Run diagnostic test 006, testing the lower pick-up roller clutch.
- Check TP3-8 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #12 in this TAG.

11

Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P69.
- Check P40-8 to J69-2 and P40-10 to J69-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from: P40-8 to J69-2 or P40-10 to J69-1. Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the lower pick-up roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

12

Run diagnostic test 006, testing the lower feed roller clutch.

- Check TP3-5 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #14 in this TAG.

-
- 13** Turn the printer off and unplug the power cord.
- Disconnect J/P40 and J/P67.
 - Check P40-5 to J67-2 and P40-11 to J67-1 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P40-5 to J67-2 or P40-11 to J67-1. Then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the lower feed roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 14** Inspect the lower pick-up roller assembly for damage or binding.
- Is it in good working order?**
- No:** Replace the lower pick-up roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 15** Inspect the lower feed roller assembly for damage or binding.
- Is it in good working order?**
- No:** Replace the lower feed roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** The lower pick-up roller or lower feed roller may not be delivering the paper to the paper timing sensor at the correct time. Return to the beginning of this TAG.

TAG 022: Paper Jam in the Transfer or Fuser Area

Error Code: 022

Possible Causes: Paper loaded incorrectly
Wrong weight or type of paper loaded
Paper path obstruction

Possible Defects: Fuser unit
Paper supply
Paper timing roller assembly
Fuser drive assembly
Fuser drive belt
Vacuum transport unit
Exit roller assembly
Upper paper guide assembly
Lower paper guide assembly
Paper timing guide assembly
Pick pressure adjustment
PCL board
Connectors or wiring.

Caution

When clearing this jam, be careful not to get toner on your clothing, as it may stain. If toner gets on your clothing, rinse your clothes with cold water immediately to avoid stains

1 Check the paper path and remove any jammed paper.

Warning

The fuser unit may be very hot

- Check the fuser unit for paper wrapped around the heat roller.

Is paper wrapped around the heat roller?

No: Continue.

Yes: If the paper is black or very dark with no printing, go to [TAG 805: Black Prints](#). If the paper is very dark and does have printing, go to [TAG 811: Background/Residual Images/Dark Prints](#).

2 Check both paper paths for damage or obstructions.

- Confirm that J/P13, J/P22, J/P40, J/P58, and J/P65 are connected properly.
- Check that the paper is properly loaded.
- Confirm that the paper in the cassettes meets paper specifications, described in the *Guide to*

Operations manual.

- Check that the fuser unit is installed properly.
- Power-on-reset the printer.
- Run test prints.

Is error code 022 still displayed?

No: Paper incorrectly loaded, incorrect paper type in use, or a loose connector was at fault.
Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

3 Has the fuser unit been replaced recently?

No: Continue.

Yes: Go to #5 in this TAG.

4 Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: The fuser unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

5 Inspect the following for damage:

- Upper paper guide assembly
- Paper timing roller assembly
- Lower paper guide assembly
- Paper timing guide assembly

Are any of these parts damaged?

No: Continue.

Yes: Replace the damaged part, then turn to [TAG 002: Check & Problem Resolution](#).

6 Is more than one sheet of paper jamming?

No: Go to #8 in this TAG.

Yes: Continue.

7 Make sure the natural curl of the paper is turned up in the cassettes.

- Make sure the paper is under the corner separators.
- Make sure the rear and side paper guides are positioned properly.
- Make sure the paper being used does not have a high static charge.
- Run test prints.

Does the multiple feed problem still exist?

No: The paper appears to be at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Adjust the paper tension lever or pick pressure, as described in [Chapter 9, “General Printer Maintenance”](#), then turn to [TAG 002: Check & Problem Resolution](#).

8

Check the paper path for jams.

- Open the printer's front cover and insert the interlock bypass tool.
- Power-on-reset the printer.
- Run test prints.
- Watch the end of the paper timing roller shaft.

Does the paper timing roller shaft turn?

No: Continue.

Yes: Go to #14 in this TAG.

9

Check TP3-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #12 in this TAG.

10

Check J/P91-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

11

Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P91-1 to P8-13, then turn to [TAG 002: Check & Problem Resolution](#).

12

Run diagnostic test 006, testing the paper timing roller clutch.

- Check TP3-7 for a voltage change from +24 Vdc to 0 Vdc.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Continue.

Yes: Go to #14 in this TAG.

13

Turn off the printer and unplug the power cord.

- Disconnect J/P40 and J/P65.
- Check P40-7 to J65-2 and P40-11 to J65-1 for continuity.

Is there continuity on both?

No: Repair or replace the connectors and wiring from: P40-7 to J65-2 or P40-11 to J65-1.
Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the paper timing roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

14 Does paper stop or jam either before or during entry into the fuser unit?

No: Go to #17 in this TAG.

Yes: Continue.

15 Remove the fuser unit.

- Check the fuser unit rollers for damage or toner contamination.

Are they damaged or contaminated with toner?

No: Continue.

Yes: Replace the fuser unit, then turn to [TAG 002: Check & Problem Resolution](#).

16 Inspect the following for damage or binding:

- Fuser unit
- Fuser drive belt
- Fuser drive assembly

Are any of these parts damaged?

No: Go to #22 in this TAG.

Yes: Replace the damaged parts, then turn to [TAG 002: Check & Problem Resolution](#).

17 Turn the printer off.

- Check for paper jams.
- Inspect the exit roller, and exit pinch roller assemblies for damage, binding and contamination.

Are these parts in good working order?

No: Repair or replace the defective parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

18 Run test prints.

- Check the leading edge of the prints for improper registration.

Is there improper registration?

No: Continue.

Yes: Go to [TAG 807: Misregistered/Skewed Prints \(Simplex\)](#) or [TAG 901: Misregistration/Skewed Prints \(Duplex\)](#).

19 Inspect the vacuum transport unit for damage or binding.

Are the parts in good working order?

Repair or replace the vacuum transport unit, then turn to [TAG 002: Check & Problem Resolution](#).

No: Continue.

Yes: Open the top cover and install an interlock by-pass tool.

20

Power-on-reset the printer.

- While the main motor is running, cover all of the holes in the vacuum unit with a piece of paper.

Does the vacuum transport unit fan hold the paper in place?

No: Continue.

Yes: Return to the beginning of this TAG.

21

Use extreme caution: Check for 100 Vac from J/P22-1 to J/P22-2.

Is the voltage 100 Vac?

No: Continue.

Yes: Replace the vacuum transport assembly.

22

Power-on-reset the printer. Use extreme caution:

- While the main motor is running, monitor J/P13-6 and J/P13-3 for 100 Vac.

Is the voltage 100 Vac?

No: Replace the power control board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from J22-1 to P13-6 or J22-2 to P13-3. Then turn to [TAG 002: Check & Problem Resolution](#).

TAG 023: Paper Jam in the Output Area

Error Code: 023

Possible Causes: Paper path obstruction
Output tray obstruction

Possible Defects: Exit paper sensor
Fuser drive unit
Exit roller assembly
Exit pinch roller assembly
PCL board
Connectors or wiring

If the printer has a high capacity output unit (HCO), unplug and remove it before you begin. Test the printer without the HCO; if the problem remains, proceed with this TAG. If the problem occurs only with the HCO, the HCO is causing the problem. Repair or replace the HCO.

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P50 and J/P40 are connected properly.
 - Check the paper path and remove any paper jams.
 - Check the output tray and remove any paper jams.
 - Power-on-reset the printer.
 - Run test prints.

Is error code 023 displayed?

No: Loose connectors or obstructions were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2 **Is paper stopped or jammed at the output tray?**

No: Continue.

Yes: Go to #5 in this TAG.

3 Inspect the exit paper sensor actuator for damage or binding.

Is it in good working order?

No: Repair or replace the exit paper sensor actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

4 Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P49.
- Check the following for continuity:
P40-24 to P49-2,
P40-26 to P49-1, and

P40-13 to P49-3.

Is there continuity?

No: Repair or replace the connectors or wiring from:

P40-26 to J/P50-1 to P49-1,
P40-24 to J/P50-2 to P49-2, or
P40-13 to J/P50-3 to P49-3.

Yes: Replace the exit paper sensor.

5

Turn the printer off and unplug the power cord.

- Open the back cover and install an interlock bypass tool.
- Remove the fuser drive cover.
- Inspect the following for damage, binding, or contamination:
 - Exit roller assembly
 - Exit roller drive gear
 - Exit pinch roller assembly

Are all the parts in good working order?

No: Replace the defective parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Remove the fuser unit.

- Inspect the following for damage or binding:
 - Fuser drive assembly
 - Fuser drive belt
 - Main drive gear assembly

Are all the parts in good working order?

No: Replace the defective parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Reinstall the fuser unit and continue.

7

Run diagnostic test 009.

- Watch the fuser drive and the exit roller assembly.

Are they in good working order?

No: Replace the defective parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the fuser unit, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 025: Paper in Input Area Before Printing

Error Code: 025

Possible Defects: Paper timing sensor
PCL board
Connectors or wiring

- 1** Turn the printer off and unplug the power cord.
- Check the paper path and remove any paper jams.
 - Confirm that J/P58 and J/P40 are connected properly.
 - Inspect the paper timing sensor actuator for damage or binding.

Is it in good working order?

No: Replace the paper timing guide assembly and continue.

Yes: Continue.

- 2** Power-on-reset the printer.

Is error code 025 displayed?

No: Jammed paper, loose connectors, or the sensor actuator were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** Check TP3-25 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 4** Loosen the paper timing guide.
- Confirm that J/P57 is connected properly.

Is J/P57 connected properly?

No: Continue.

Yes: Go to #6 in this TAG.

- 5** Reconnect J/P57.

- Reinstall the paper timing guide.
- Power-on-reset the printer.

Is error code 025 still displayed?

No: J/P57 was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Turn the printer off and unplug the power cord.

- Loosen the paper timing guide.
- Disconnect J/P57 and J/P40.
- Check the following for continuity:
 - P40-16 to P57-2
 - P40-25 to P57-1
 - P40-12 to P57-3

Is there continuity?

No: Repair or replace the connectors or wiring from:

- P40-25 to J/P58-1 to P57-1
- P40-16 to J/P58-2 to P57-2
- P40-12 to J/P58-3 to P57-3

Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the paper timing guide. If that doesn't resolve the problem, replace the PCL board. Then turn to [TAG 002: Check & Problem Resolution](#).

TAG 026: Paper in Output Area Before Printing

Error Code: 026

Possible Defects: Exit paper sensor
PCL board
Connectors or wiring

If the printer has a high capacity output unit (HCO), unplug and remove it before beginning this TAG. Test the printer without the HCO; if the problem remains, proceed with this TAG. If the problem occurs only with the HCO, the HCO is causing the problem. Repair or replace the HCO.

-
- 1** Turn the printer off and unplug the power cord.
- Check the paper path and remove any paper jams.
 - Confirm that J/P50 and J/P40 are connected properly.
 - Inspect the exit paper sensor actuator for damage or binding.

Is it in good working order?

No: Replace the exit paper sensor actuator and continue.

Yes: Continue.

-
- 2** Power-on-reset the printer.

Is error code 026 displayed?

No: Jammed paper, loose connectors, or sensor actuator were at fault; go to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** Check J/P40-26 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue

-
- 4** Turn off the printer and unplug the power cord.

- Remove the exit cover.
- Disconnect J/P49 and J/P40.
- Check the following for continuity:
P40-26 to P49-1,
P40-24 to P49-2, and
P40-13 to P49-3

Is there continuity?

No: Repair or replace the connectors or wiring from:

P40-26 to J/P50-1 to P49-1,
P40-24 to J/P50-2 to P49-2, or
P40-13 to J/P50-3 to P49-3.

Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the exit paper sensor. If this doesn't resolve the problem, replace the PCL board.

Then turn to [TAG 002: Check & Problem Resolution](#).

TAG 030: Developer Bias Short/Failure

Error Code: 030

Possible Defects: Cleaner unit
High voltage unit
DC power supply
Connectors or wiring
PCL board
Printhead assembly
Power control #2 board
Developer unit

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P23, J/P24, J/P40, J/P41, J/P96, and J/P85 are connected properly.
 - Power-on-reset the printer.

Is error code 030 still displayed?

No: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 2** Check the voltages, as described in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** **Has the developer unit been replaced recently?**

No: Go to #5 in this TAG.

Yes: Continue.

-
- 4** Replace the cleaner unit.

- Run test prints.

Is error code 030 still displayed?

No: The cleaner unit was defective; turn to [TAG 002: Check & Problem Resolution](#).

Yes: Reinstall the original cleaner unit and go to #6 in this TAG.

-
- 5** Replace the developer unit.

- Install a new toner cartridge.
- Run test prints.

Is error code 030 still displayed?

No: The developer unit was defective; turn to [TAG 002: Check & Problem Resolution](#).

Yes: Reinstall the original developer unit and continue.

6 Open the back cover and install an interlock by-pass tool.

- Power-on-reset the printer.
- Check TP4-35 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #11 in this TAG.

Yes: Continue.

7 Check J/P23-5 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P41-35 to P23-5, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

8 Turn the printer off and unplug the power cord.

- Disconnect J/P41 and J/P24.
- Check the following for continuity:
 - P41-31 to P24-1
 - P41-30 to P24-2
 - P41-40 to P24-3

Is there continuity?

No: Repair or replace the connectors or wiring from:

P41-31 to P24-1

P41-30 to P24-2

P41-40 to P24-3

Then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9 Disconnect P85 from the high voltage unit.

- Check P85-3 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P85-3 to J25-7, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

10 Disconnect J/P96.

- Check P96-1 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the developer power supply lead from J/P96-1 to P85-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).

11 Check TP3-27 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

12 Check J/P12-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Repair or replace the connectors or wiring from P40-27 to P12-1, then turn to [TAG 002: Check & Problem Resolution](#).

13 Check J/P11-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).

14 Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P8-11 to P11-1, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 031: Toner Patch Reference Level Too Low

Error Code: 031

Possible Causes: Contamination of the toner patch sensor or printhead lens

Possible Defects: Photoconductor unit
Connectors or wiring
PCL board
Developer unit

-
- 1** Turn the printer off and unplug the power cord.
- Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Clean the toner patch sensor on the developer unit.
 - Clean the printhead lens.
 - Run at least 200 test prints to detone the printer’s engine.

Has the problem been resolved?

No: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 2** Check the voltages, as described in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** **Have the photoconductor and developer units been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

-
- 4** Replace the photoconductor unit.
- Run 200+ test prints to reduce toner concentration in the developer unit.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor was at fault; turn to [TAG 002: Check & Problem Resolution](#).

-
- 5** Replace the developer unit.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#). If the problem reappears, the toner/carrier mix may be old or contaminated.

6

Turn the printer off and unplug the power cord.

- Remove the developer unit.
- Disconnect J/P41.
- Check P41-47 to J25-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-47 to J25-3.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 032: Toner Patch Too Light

Error Code: 032, 033

Possible Defects: Photoconductor unit
IGS board
PCL board

1 Check the voltages, as described in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2 **Have the photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

3 Replace the photoconductor unit.

- Run 200+ test prints to reduce toner concentration in the developer unit.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor was at fault; turn to [TAG 002: Check & Problem Resolution](#).

4 Turn the printer off and unplug the power cord.

- Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
- Clean the toner patch sensor on the developer unit.
- Clean the printhead lens.
- Run at least 55 test prints

Has the problem been resolved?

No: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue

5 Run test prints.

Do the test prints appear overtoned, dark, or have background?

No: Go to #8 in this TAG

Yes: Continue.

6 Develop a toner patch, as described in [Chapter 1, “Printer and Troubleshooting Overview”](#).

Is the toner patch developed and properly positioned?

No: Replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue

7

Check the toner patch sensor board in the developer unit for loose wiring connectors.

Are all connectors and wiring connected properly?

No: Reconnect the wiring and connectors or replace the developer unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Go to [TAG 808: Prints Overtone/Dark Vertical Streaks](#), [TAG 811: Background/Residual Images/Dark Prints](#), or both, to identify the problem further.

8

Do the prints appear light or blank?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the photoconductor unit, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 035: Out of Toner or ADD TONER Indicator On

Error Code: 035

Possible Causes: Photoconductor unit
Toner cartridge seal not removed
Toner cartridge empty
High print coverage

Possible Defects: PCL board
Developer unit connectors or wiring

An 035 error may occur if the print coverage exceeds 25%. Do not run high print coverage jobs for extended periods of time.

1 Power-on-reset the printer.

- Run test prints.

Is error code 035 displayed?

No: Continue.

Yes: Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#). Clean the toner patch sensor and the printhead lens, then continue.

2 Check the voltages, as described in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

3 **Has the photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #5 in this TAG.

4 Replace the photoconductor unit.

- Run 200+ test prints to reduce toner concentration in the developer unit.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

5 **Has the seal has been removed from the toner cartridge?**

No: Continue.

Yes: Go to #7 in this TAG.

6

Remove the toner cartridge seal.

- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: The toner cartridge seal was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

7

Turn the printer off and unplug the power cord.

- Disconnect J/P41.
- Remove the developer unit.
- Check P41-48 to J25-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-48 to J25-6, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board. If this resolves the problem, then turn to [TAG 002: Check & Problem Resolution](#). If the problem is still not resolved, go to [TAG 610: Operator Panel Malfunction](#).

TAG 036: Developer Unit Not Installed

Error Code: 036

Possible Defects: Developer unit not installed properly
Connectors or wiring
PCL board

- 1** Turn the printer off and unplug the power cord.
- Make sure the developer unit is installed properly.
 - Confirm that J/P41 is connected properly.
 - Confirm that the proper developer unit is installed.
 - Power-on-reset the printer.

Is error code 036 displayed?

No: A loose connector or improper developer unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 2** Check the voltages, as described in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** Turn the printer off and unplug the power cord.
- Disconnect J/P41.
 - Check P41-45 to P41-46 for continuity.

Is there continuity?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

- 4** Remove the developer unit.
- Check P41-45 to J25-12 and P41-46 to J25-8 for continuity.

Is there continuity on both?

No: Repair or replace the connectors or wiring from: P41-45 to J25-12 or P41-46 to J25-8, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the developer unit, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 040: Photoconductor Seam Sensor Malfunction

Error Code: 040, 041, 042

Possible Defects: Photoconductor unit
Main motor gear
Main motor gear keys
Main drive gear assembly
Main drive motor assembly
Connectors or wiring
PCL board
Software
Seam sensor

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P4, J/P9, J/P12, J/P14, J/P20, J/P40, J/P41, J/P63 (photoconductor seam sensor), J/P64, J/P251, and J/P252 are connected properly.
 - Remove the photoconductor unit.
 - Clean the photoconductor unit contacts, the guide rail contacts, and the photoconductor cavity.
 - Clean the seam sensor lens and cavity, and remove any obstructions.
 - Reinstall the photoconductor unit.
 - Power-on-reset the printer.

Is error code 040, 041, or 042 still displayed?

No: Loose connectors or dirty contacts were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2 **Has the photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

3 Replace the photoconductor unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and continue.

Yes: The photoconductor was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

4 Open the top cover and insert an interlock by-pass tool.

- Run diagnostic test 009.

Does the photoconductor belt rotate?

No: Continue.

Yes: Go to #11 in this TAG.

5 **Is error code 041 or 042 displayed while running diagnostic test 009?**

No: Continue.

Yes: Go to #12 in this TAG.

6

Turn the printer off.

- Remove the photoconductor unit.
- Inspect it for damaged drive mechanism or belt slippage.

Is it in good working order?

No: Replace the photoconductor unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7

Reinstall the photoconductor unit.

- Remove the interlock by-pass tool and close the top cover.
- Open the back cover and install an interlock by-pass tool.
- Remove the main drive motor assembly cover.
- Turn the printer on.
- Run diagnostic test 009.
- Watch the main motor.

Does the main motor gear turn while running diagnostic test 009?

No: Continue.

Yes: Replace the main motor gear, main motor gear key, or both, or replace the main drive gear assembly, as needed. Then turn to [TAG 002: Check & Problem Resolution](#).

8

Run diagnostic test 009. Use extreme caution:

- Check J/P20-2 to J/P20-3 for 100 Vac while the test is running.

Is the voltage 100 vac?

No: Continue.

Yes: Replace the main drive motor assembly, then turn to [TAG 002: Check & Problem Resolution](#).

9

Run diagnostic test 009. Use extreme caution:

- Check J/P14-2 to J/P14-3 for 100 Vac while the test is running.

Is the voltage 100 Vac?

No: Continue.

Yes: Repair or replace the connectors or wiring from P14-2 to P20-3 or P14-3 to P20-2; then turn to [TAG 002: Check & Problem Resolution](#).

10

Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P12.
- Check P40-33 to P12-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-33 to P12-7.

Yes: Replace the power control board; if this does not correct the problem, replace the PCL board. Then turn to [TAG 002: Check & Problem Resolution](#).

-
- 11** Remove the photoconductor unit.
- Inspect the photoconductor belt for damage.
 - Check the timing hole for contamination or blockage.
- Are the photoconductor belt and the timing hole both in good working order?**
- No:** Replace the photoconductor unit, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 12** Turn the printer off.
- Disconnect J/P40.
 - Turn the printer on.
 - Check TP3-20 for +12 Vdc.
- Is the voltage +12 Vdc?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 13** Check TP3-21 for between +2 to +6 Vdc.
- Is the voltage between +2 to +6 Vdc?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 14** Turn the printer off and unplug the power cord.
- Remove the photoconductor unit.
 - Disconnect J/P63, observing carefully the plug's orientation before you remove it.
 - Check the following for continuity:
 - P40-19 to J/P64-1 to J/P252, which is the center connector contact on the photoconductor guide rail;
 - P40-21 to J/P64-2 to J/P251, which is the top connector contact on the photoconductor guide rail;
 - P40-18 to J/P 64-3 to P63-1;
 - P40-20 to J/P64-4 to P63-2.
- Is there continuity on all?**
- No:** Repair or replace the connectors or wiring that did not have continuity, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 15** Repair or replace the photoconductor seam sensor.
- Reconnect J/P40 and J/P63.
 - Reinstall the photoconductor.
 - Power-on-reset the printer.
- Has the problem been resolved?**
- No:** Continue.
- Yes:** Go to [TAG 002: Check & Problem Resolution](#).
-

16

Clean both the photoconductor LED and seam sensor using a cotton swab or compressed air.

- Run diagnostic 009.
- Using an oscilloscope connected to TP3-20 on the PCL board, adjust the signal so that it matches figure A by moving the sensor bracket closer or farther from the photoconductor unit. Figure B illustrates a bad signal. Note that 7ms is the recommended minimum length of time the waveform should maintain 0v; you may have to settle for less. The two small signals prior to the 12v signal are from the smaller holes in the photoconductor unit; the larger signal is from the cutout for the PC sensor.

Figure A

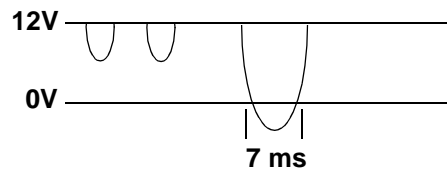
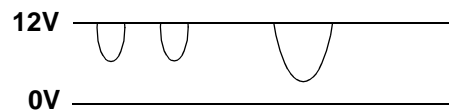


Figure B



Is the signal adjusted to match that illustrated in Figure A?

No: Repeat this step until the signal has been adjusted properly.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 044: Main Charger/Transfer Charger Circuit Open

Error Code: 044

Possible Defects: Main charger
Transfer charger
Connectors or wiring
High voltage unit
Upper paper guide
Main charger terminal assembly
PCL board

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P23 and J/P41 are connected properly.
 - Make sure the high voltage unit main charger lead is connected properly.
 - Make sure the transfer charger lead is connected properly.
 - Verify that the main charger and transfer charger ground circuits are connected properly.
 - Remove the transfer charger from the upper paper guide.
 - Clean the transfer charger housing and contacts.
 - Clean the transfer charger wire.
 - Inspect the transfer charger socket in the upper paper guide for contamination.
 - Verify that the transfer charger static eliminator brush on the transfer charger housing is grounded to the transfer charger metal housing.
 - Reinstall the transfer charger.
 - Clean the main charger contacts.
 - Power-on-reset the printer.
 - Run test prints.

Is error code 044 displayed?

No: Loose connectors or a dirty transfer charger were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2 **Has the main charger been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

3 Replace the main charger and photoconductor unit.

- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original main charger and photoconductor unit, and continue.

Yes: The main charger was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 4** Remove the transfer charger.
- Inspect the housing for jammed paper.
- Is paper jammed inside the transfer charger housing?**
- No:** Continue.
- Yes:** Remove the jammed paper and check the transfer charger for damage, then turn to [TAG 022: Paper Jam in the Transfer or Fuser Area](#).
-
- 5** Run diagnostic test 011.
- Is error code 046 displayed?**
- No:** Continue.
- Yes:** Go to #11 in this TAG.
-
- 6** Run diagnostic test 012.
- Is error code 051 displayed?**
- No:** Continue.
- Yes:** Go to #8 in this TAG.
-
- 7** Run diagnostic test 012.
- Is error code 050 displayed?**
- No:** The problem appears to be intermittent. Go to [TAG 050: Transfer Charger Circuit Shorted](#).
- Yes:** Go to [TAG 050: Transfer Charger Circuit Shorted](#).
-
- 8** Turn the printer off and unplug the power cord.
- Remove the transfer charger.
 - Inspect the transfer charger wire.
- Is the transfer charger wire damaged?**
- No:** Continue.
- Yes:** Replace the transfer charger, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 9** With the upper paper guide assembly in its fully upright position, check the transfer charger's lower receptacle for continuity to ground.
- Is there continuity?**
- No:** Replace or repair the upper paper guide assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 10** Disconnect high voltage unit lead to the transfer charger.
- Check the transfer charger's upper receptacle to the lead removed from the high voltage unit for

continuity.

Is there continuity?

No: Replace the upper paper guide assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Go to #13 in this TAG.

11

Turn the printer off and unplug the power cord.

- Disconnect the main charger lead from the high voltage unit.
- Check for continuity the main charger lead terminal assembly's lower contact to the lead removed from the high voltage unit.

Is there continuity?

No: Repair or replace the main charger lead or the main charger terminal assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

12

Remove the cleaner unit.

- Disconnect J/P85.
- Check for continuity between the connector for the main charger terminal assembly's upper contact and J/P85-10 at the high voltage unit.

Is there continuity?

No: Repair or replace the connectors or wiring, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

13

Disconnect J/P41 and J/P23.

- Check P41-35 to P23-5 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-35 to P23-5, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

14

Check P41-39 to P23-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-39 to P23-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

15

Reconnect the power.

- Turn the printer on.
- Check J/P41-35 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Determine whether the high voltage unit or the main charger terminal assembly is at fault, replace the faulty unit, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 045: Main Charger Circuit Shorted

Error Code: 045

Possible Defects: Main charger
High voltage unit
Main charger terminal assembly
Connectors or wiring
PCL board

- 1** Turn the printer off and unplug the power cord.
- Verify that J/P23, J/P41, J/P85, P124, P143, and the high voltage unit main charger lead are connected properly.
 - Clean the main charger contacts.
 - Power-on-reset the printer.
 - Run test prints.

Is error code 045 displayed?

No: Loose connectors or dirty contacts were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2 **Has the main charger been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

3 Replace the main charger and photoconductor unit.

- Run test prints.

Is error code 045 still displayed?

No: The main charger was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Reinstall the original main charger and photoconductor unit, then continue.

4 Turn the printer off and unplug the power cord.

- Disconnect the main charger lead from the high voltage unit.
- Check for continuity the main charger terminal assembly's lower contact to the lead removed from the high voltage unit.

Is there continuity?

No: Repair or replace the high voltage lead or the main charger terminal block, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

5

Reconnect the main charger high voltage lead.

- Disconnect P23 and J/P41.
- Check J/P41-34 to P23-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-34 to P23-6, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Check P41-35 to P23-5 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-35 to P23-5.

Yes: Replace the high voltage unit. If this corrects the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not correct the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 050: Transfer Charger Circuit Shorted

Error Code: 050

Possible Defects: Transfer charger
High voltage unit
Connectors or wiring
PCL board
Upper paper guide assembly

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P23, J/P41 and the transfer charger high voltage unit lead are connected properly.
 - Power-on-reset the printer.
 - Run test prints.

Is error code 050 displayed?

No: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 2** Turn the printer off and unplug the power cord.
- Remove and clean the transfer charger housing and contacts.
 - Check between the two terminals on the back of the transfer charger for continuity.

Is there continuity?

No: Continue.

Yes: Repair or replace the transfer charger, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 3** Reinstall the transfer charger.
- Power-on-reset the printer.
 - Run test prints.

Is error code 050 displayed?

No: A dirty transfer charger was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 4** Turn the printer off and unplug the power cord.
- Disconnect the transfer charger lead from the high voltage unit.
 - Check the transfer charger high voltage unit lead for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Repair or replace the upper paper guide assembly or transfer charger, then turn to [TAG 002: Check & Problem Resolution](#).

5

Reconnect the transfer charger high voltage unit lead.

- Disconnect J/P23 and J/P41.
- Check P41-37 to P23-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-37 to P23-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Replace the transfer charger.

Has the problem been resolved?

No: Replace the high voltage unit. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If the problem has not been resolved, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 055: Erase Lamp Malfunction

Error Code: 055

Possible Defects: Erase lamp assembly
Connectors or wiring
PCL board

- 1** Turn the printer off and unplug the power cord.
- Verify that J/P26, J/P40 are connected properly.
 - Power-on-reset the printer.

Is error code 055 displayed?

No: Continue.

Yes: Go to #3 in this TAG.

- 2** Run diagnostic test 013.

Is the value displayed less than 220?

No: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** Run diagnostic test 009.
- Watch all the LEDs on the erase lamp.

Do all the LEDs on the erase lamp come on, even momentarily?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

- 4** Run diagnostic test 013.
- Check J/P26-2 for +12 Vdc immediately. After the start of the test, the voltage may drop to 0 Vdc.

Did you measure +12 Vdc?

No: Continue.

Yes: Go to #6 in this TAG.

- 5** Turn off the printer and unplug the power cord.
- Disconnect J/P26 and J/P40.
 - Check P26-2 to P40-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P26-2 to P40-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

6

Turn off the printer and unplug the power cord.

- Disconnect P26 and P40.
- Check P26-1 to P40-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P26-1 to P40-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the erase lamp assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, turn to [TAG 002: Check & Problem Resolution](#).

TAG 070: Fuser Unit Malfunction

Error Code: 070, 073
Symptoms: No AC power at the fuser
Possible Defects: Fuser unit
Power control #2 board
AC power supply unit
DC power supply unit
Connectors or wiring
PCL board

Note

A lack of continuity can result in fuser unit damage. If there is no continuity, replace the fuser unit when replacing the connectors and/or wiring

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P44, J/P4, J/P10, J/P11, J/P12, J/P70, J/P40, J/P41, J/P8, and J/P5 (bottom of fuser unit) are connected properly.
 - Verify that the fuser unit is installed properly.
 - Read the following steps before taking further action.
 - Power-on-reset the printer.
 - Watch through the output tray opening to see if the fuser lamp comes on.

Note

If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.

Is error code 070 or 073 displayed?

No: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2 **Has the fuser unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

-
- 3** Replace the fuser unit.
- Power-on-reset the printer.
 - Watch through the output tray opening to see if the fuser lamp comes on.
 - If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

4

Power-on-reset the printer.

- Watch through the output tray opening to see if the fuser lamp comes on during the 15 seconds following the output tray jogging test.
- If the fuser lamp comes on immediately after power on, turn the printer off and replace the AC power supply.

Does the fuser lamp light?

No: Go to #10 in this TAG.

Yes: Continue.

5

Read this entire step before taking any action.

- Power-on-reset the printer.
- Check the voltage between TP4-21 and ground on the PCL board for a voltage increase during the 15 seconds following the output tray jogging test.

Caution

If the voltage does not increase within 15 seconds, turn the printer off immediately or additional damage may occur.

Did the voltage remain constant for 15 seconds after the output tray jogging test?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Check TP4-22 on the PCL board for +5 Vdc.

Caution

Do not allow the printer to remain on for more than five seconds or additional damage may occur.

Is the voltage approximately +5 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7

Turn the printer off and unplug the power cord.

- Remove the fuser unit.
- Disconnect J/P41.
- Check P41-22 to P5-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-22 to P83-1 or J83-1 to P5-6, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

8

Check P41-21 to P5-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41- 21 to P83-2 or J83-2 to P5-7, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9

Reinstall the fuser unit.

- Check P41-21 to P41-22 for resistance.

Is the resistance between 1 K Ω and 400 K Ω ?

No: The new fuser unit seems to be defective. Replace it with a new fuser unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

10

Power-on-reset the printer.

- Check J/P10-2 for +24 Vdc during the 15 seconds following power-on-reset.

Is the voltage +24 Vdc?

No: Go to #16 in this TAG.

Yes: Continue.

11

Turn the printer off.

- Continue to check J/P10-2 for +24 Vdc.
- Power-on-reset the printer.

Does the voltage drop from +24 Vdc to 0 Vdc during the 15 seconds following the output tray jogging test?

No: Go to #24 in this TAG.

Yes: Continue.

12

Power-on-reset the printer. Use extreme caution:

- Check J/P44-1 to J/P44-2 for at least 100 Vac during the 15 seconds following the output tray jogging test.

Is the voltage at least 100 Vac?

No: Go to #15 in this TAG.

Yes: Continue.

-
- 13** Turn off the printer.
- Remove the fuser unit.
 - Clean the contacts of connector J/P5.
 - Disconnect J/P44.
 - Check J44-2 to J5-4 and J44-1 to J5-1 for continuity.

Is there continuity on both?

No: Repair or replace the connectors or wiring as needed, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 14** Reinstall the fuser unit.
- Power-on-reset the printer.

Has the problem been resolved?

No: Replace the fuser unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Cleaning the contacts resolved the problem. Turn to [TAG 002: Check & Problem Resolution](#).

- 15** Power-on-reset the printer. Use extreme caution:
- Check J/P4-1 to J/P4-2 for at least 100 Vac during the 15 seconds following the output tray jogging test.

Was the voltage at least 100 Vac?

No: Replace the AC power supply, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from J/P4-1 to J/P44-1, or J/P4-2 to J/P44-2, then turn to [TAG 002: Check & Problem Resolution](#).

- 16** Check J/P10-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #19 in this TAG.

- 17** Check J/P11-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).

- 18** Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P11-1 to P8-11, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 19** Turn the printer off and unplug the power cord.
- Disconnect J/P70 and J/P10.
 - Check P70-1 to P10-1 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P70-1 to P10-1, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 20** Check P70-2 and P10-2 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P70-2 to P10-2, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 21** Reconnect J/P70.
- Connect negative lead of meter to P10-2 and positive lead of meter to P10-1.
- Is the resistance approximately 550K Ω ?**
- No:** Replace the AC power supply, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 22** Disconnect J/P12.
- Check J10-2 (power control #2 board) for continuity to ground.
- Is there continuity?**
- No:** Continue.
- Yes:** Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 23** Reconnect J/P10 and J/P12.
- Disconnect J/P40.
 - Check P40-36 for continuity to ground.
- Is there continuity?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring from P40-36 to P12-1, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 24** Power-on-reset the printer.
- Check TP3-36 on the PCL board for a voltage change from +24 Vdc to 0 Vdc during the 15 seconds after the output tray jogging test.
- Does the voltage change from +24 Vdc to 0 Vdc?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Go to #11 in this TAG.
-

TAG 071: Open Fuser Thermistor

Error Code: 071

Possible Defects: Connectors or wiring
Fuser unit
PCL board

- 1** Turn the printer off and unplug the power cord.
- Make sure the fuser unit is installed properly.
 - Confirm that J/P41 and J/P44 are connected properly.

Has the fuser unit been replaced recently?

No: Continue.

Yes: Go to #3 in this TAG.

- 2** Replace the fuser unit.
- Power-on-reset the printer.

Is error code 071 displayed during power-on-reset?

No: The fuser unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Reinstall the original fuser unit and continue.

- 3** Turn the printer off and unplug the power cord.
- Disconnect J/P41.
 - Remove the fuser unit.
 - Check P41-21 to P5-7 and P41-22 to P5-6 for continuity.

Is there continuity on both?

No: Repair or replace the connectors or wiring as necessary, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 4** Check P41-21 and P41-22 for continuity to ground.

Is there continuity to ground on either?

No: Replace the fuser unit. If this resolves the problem, then turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring that have continuity to ground:
P41-21 to P44-2,
J44-2 to P5-7, or
P41-22 to P44-1, J44-1 to P5-6;
then turn to [TAG 002: Check & Problem Resolution](#).

TAG 072: Fuser Unit Temperature Too High

Error Code: 072

Possible Defects: Connectors or wiring
Fuser unit
AC power supply unit
PCL board

The conditions that cause error code 072 often cause the fuser unit's thermal fuse to open. This usually necessitates replacement of the fuser unit.

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P44, J/P40, J/P10, J/P70, and J/P8 are connected properly.
 - Make sure the fuser unit is properly installed.
 - Read the following steps before taking further actions.
 - Power-on-reset the printer.
 - Watch through the output tray opening to see if the fuser lamp comes on.
 - If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2 **Has the fuser unit been replaced recently?**

No: Continue.

Yes: Go to #4 in this TAG.

-
- 3** Replace the fuser unit.
- Power-on-reset the printer.
 - Watch through the output tray opening to see if the fuser lamp comes on during the 15 seconds after the output tray jogging test.
 - If the fuser lamp comes on immediately after power on, turn off the printer and replace the AC power supply.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: The fuser unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 4** Power-on-reset the printer.
- Watch the fuser unit's lamp.

Does the lamp turn on before error code 072 is displayed?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

5

Turn the printer off and unplug the power cord.

- Disconnect J/P41.
- Check P41-21 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring that have continuity to ground: P41-21 to P44-2, or J44-2 to P5-7; then turn to [TAG 002: Check & Problem Resolution](#).

6

Check P41-21 to P41-22 for resistance.

Is the resistance at least 1K±WW?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

7

Remove the fuser unit.

- Check P41-21 to P5-7 for resistance.

Is there resistance?

No: Continue.

Yes: Repair or replace the connectors or wiring that have resistance: P41-21 to P44-2, or J44-2 to P5-7; then turn to [TAG 002: Check & Problem Resolution](#).

8

Check P41-22 to P5-6 for resistance.

Is there resistance?

No: Replace the fuser unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring that have resistance: P41-22 to P44-1, or J44-1 to P5-6; then turn to [TAG 002: Check & Problem Resolution](#).

TAG 083: Job Offset Mechanism Malfunction

Error Code: 081, 082, 083
Symptoms: Jobs not offsetting
Jobs offsetting improperly
Continuous jogging
Possible Defects: Job offset mechanism
Jogging motor
Connectors or wiring
Tray front sensor
Tray rear sensor
Power control #3 board

- 1** Turn the printer off and unplug the power cord.
- Verify that J/P100, J/P101, J/P102, J/P19, J/P40, J/P54, J/P53, and J/P55 are connected properly.
 - Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 2** **Does the output tray jog continuously?**

No: Go to #4 in this TAG.

Yes: Continue.

- 3** Turn the printer off and unplug the power cord.
- Disconnect J/P40 and J/P102.
 - Check P40-32 for continuity to ground.

Is there continuity to ground?

No: Replace the power control #3 board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P40-32 to P102-2, then turn to [TAG 002: Check & Problem Resolution](#).

- 4** Run diagnostic test 008.

Does the output tray move back and forth?

No: Continue.

Yes: Go to #15 in this TAG.

- 5** Run diagnostic test 008. Use extreme caution:
- Check J/P19-1 to J/P19-3 for 100 Vac while the test is running.

Is the voltage 100 Vac?

No: Continue.

Yes: Replace the jogging motor, then turn to [TAG 002: Check & Problem Resolution](#).

6 Run diagnostic test 008.

Caution

Check J/P101-2 to J/P101-1 for 100 Vac while the test is running

Is the voltage 100 Vac?

No: Go to #9 in this TAG.

Yes: Continue.

7 Turn the printer off.

- Disconnect J/P101 and J/P19.
- Check P101-2 to P19-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P101-2 to P19-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

8 Check P101-1 to P19-3 for continuity.

Is there continuity?

No: Repair or replace the connector or wiring from P101-1 to P19-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the job offset assembly, then turn to [TAG 002: Check & Problem Resolution](#).

9 Run diagnostic test 008.

- Check J/P102-2 for +12 Vdc while the test is running.

Is the voltage +12 Vdc?

No: Go to #11 in this TAG.

Yes: Replace the power control #3 board, then turn to [TAG 002: Check & Problem Resolution](#).

10 Run diagnostic test 008.

- Check TP3-32 on the PCL board for +12 Vdc while the test is running.

Is the voltage +12 Vdc?

No: Repair or replace the connectors or wiring from P102-2 to P40-32, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 11** Run diagnostic test 008.
- Check J/P102-1 for +12 Vdc while the test is running.
- Is the voltage +12 Vdc?**
- No:** Continue.
- Yes:** Replace the power control #3 board, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 12** Run diagnostic test 008.
- Check TP3-35 on the PCL board for +12 Vdc while the test is running.
- Is the voltage +12 Vdc?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring from P102-1 to P40-35, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 13** Run diagnostic test 008.
- Does the tone sound steadily while the output tray moves back and forth?**
- No:** Continue.
- Yes:** Repair or replace the job offset assembly, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 14** Turn the printer off and unplug the power cord.
- Disconnect J/P53, J/P55, and J/P40.
 - Check P40-26 to P53-1 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P40-26 to J/P54-1 to P53-1, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 15** Check P40-23 to P53-2 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P40-23 to J/P54-2 to P53-2, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 16** Check P40-13 to P53-3 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P40-13 to J/P54-3 to P53-3, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

17 Check P40-26 to P55-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-26 to J/P54-4 to P55-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

18 Check P40-22 to P55-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-22 to J/P54-5 to P55-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

19 Check P40-13 to P55-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-13 to J/P54-6 to P55-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

20 Reconnect J/P40, J/P53, and J/P55.

- Run diagnostic test 008.

Is error code 083 displayed?

No: Continue.

Yes: Verify again that J/P40, J/P53, J/P55, and J/P54 are connected properly. If they're not, connect them properly, then turn to [TAG 002: Check & Problem Resolution](#). If they are, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

21 Interchange P53 and P55.

- Run diagnostic test 008.

Does the error code change from 081 to 082?

No: Continue.

Yes: Adjust the tray front sensor position. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the tray front sensor, then turn to [TAG 002: Check & Problem Resolution](#).

22 **Does the error code change from 082 to 081?**

No: Replace the job offset assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Adjust the tray rear sensor position. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the tray rear sensor or job offset sensor, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 097: +12 Vdc Power Shorted or Sensing Problem

Error Code: 097

Possible Defects: DC power supply unit
Connectors or wiring
Signal interface board
IGS board
Optional external attachment
Power control #2 board
Power control #3 board
Developer unit
Paper timing sensor
Upper paper empty sensor
Lower paper empty sensor
Output tray full sensor
Paper exit sensor
Tray front sensor
Tray rear sensor
Erase lamp
PCL board

Possible Defects, Duplex Printers:

Duplex control board #1
Duplex control board #2
Paper path sensor
Cover open sensor
Restart side sensor
Restart paper sensor

1

Turn off the printer and unplug the power cord.

- Verify that J/P303, J/P331, J/P323, J/P305, J/P310, J/P306, J/P32, and J/P33 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2

Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

3

Turn the printer off.

- Disconnect J/P330.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

No: Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #35 in this TAG.

4

Turn the printer off.

- Disconnect J/P32.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #8 in this TAG.

Yes: Continue.

5

Turn the printer off.

- Reconnect J/P32.
- Disconnect J/P74.
- Turn the printer on.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Does the printer have an attachment option?

No: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7

Turn the printer off.

- Reconnect J/P74.
- Disconnect the DC cable (J/P73) for the attachment option.
- Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the attachment option, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 8** Turn the printer off.
- Reconnect J/P32.
 - Disconnect J/P91.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #13 in this TAG.

Yes: Continue.

- 9** Turn the printer off.
- Reconnect J/P91.
 - Disconnect J/P40 and J/P41.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 10** Turn the printer off.
- Reconnect J/P40.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #15 in this TAG.

Yes: Continue.

- 11** Turn the printer off.
- Reconnect J/P41.
 - Remove the developer unit.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the developer unit, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 12** Turn the printer off and unplug the power cord.
- Reconnect J/P41.
 - Remove the fuser unit.
 - Check P41-49 to P25-4 and P41-50 to P25-1 for continuity to ground.

Is there continuity?

No: Go to #15 in this TAG.

Yes: Repair or replace the appropriate connectors or wiring, then turn to [TAG 002: Check & Problem Resolution](#).

- 13** Turn the printer off and unplug the power cord.
- Reconnect J/P91.
 - Disconnect J/P8 and J/P32.
 - Check J8-6 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P8-6 to P32-10 to P91-3, then turn to [TAG 002: Check & Problem Resolution](#).

- 14** Reconnect J/P32 and J/P8.
- Disconnect J/P77.
 - Turn on the printer.
 - Check J/P8-3 for +12Vdc.

Is the voltage +12 Vdc?

No: Replace the DC power supply, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the disk drive assembly, then turn to [TAG 002: Check & Problem Resolution](#).

- 15** Turn the printer off.
- Reconnect J/P41.
 - Disconnect J/P58, J/P60, and J/P62.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #21 in this TAG.

Yes: Continue.

- 16** Turn the printer off.
- Reconnect J/P58.
 - Turn on the printer.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #19 in this TAG.

Yes: Continue.

-
- 17** Turn the printer off.
- Reconnect J/P60.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #20 in this TAG.

Yes: Continue.

- 18** Disconnect J/P61.
- Check P62-1 to P61-1 for continuity to ground.

Is there continuity?

No: Replace the lower paper empty sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P62-1 to P61-1, then turn to [TAG 002: Check & Problem Resolution](#).

- 19** Disconnect J/P58 and J/P57.
- Check P58-1 to P57-1 for continuity to ground.

Is there continuity?

No: Replace the paper timing sensor.

Yes: Repair or replace the connectors or wiring from P58-1 to P57-1, then turn to [TAG 002: Check & Problem Resolution](#).

- 20** Disconnect J/P60 and J/P59.
- Check P60-1 to P59-1 for continuity to ground.

Is there continuity?

No: Replace the upper paper empty sensor.

Yes: Repair or replace the connectors or wiring from P60-1 to P59-1, then turn to [TAG 002: Check & Problem Resolution](#).

- 21** Turn the printer off and unplug the power cord.
- Disconnect J/P40.
 - Check for continuity to ground:
P40-25 to J58-1, P40-25 to J60-1, and P40-25 to J62-1.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P40-25 to J58-1, P40-25 to J60-1, or P40-25 to J62-1, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 22** Turn the printer off.
- Reconnect J/P40, J/P58, J/P60, and J/P62.
 - Disconnect J/P50 and J/P54.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #30 in this TAG.

Yes: Continue.

- 23** Turn the printer off.
- Reconnect J/P50.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #27 in this TAG.

Yes: Continue.

- 24** Turn the printer off.
- Reconnect J/P54.
 - Disconnect J/P53.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the front tray sensor, then turn to [TAG 002: Check & Problem Resolution](#).

- 25** Turn the printer off.
- Disconnect J/P55.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the rear tray sensor, then turn to [TAG 002: Check & Problem Resolution](#).

- 26** Turn the printer off and unplug the power cord.
- Disconnect J/P54.
 - Check J54-1 and J54-4 for continuity to ground.

Is there continuity to ground at either?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from: J54-1 to P53-1 or J54-4 to P55-1, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 27** Turn the printer off.
- Remove the exit cover.
 - Disconnect J/P49 and J/P51.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #29 in this TAG.

Yes: Continue.

- 28** Turn the printer off.
- Reconnect J/P49.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the paper exit sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the output tray full sensor, then turn to [TAG 002: Check & Problem Resolution](#).

- 29** Turn the printer off and unplug the power cord.
- Disconnect J/P50.
 - Check J50-1 and J50-4 for continuity to ground.

Is there continuity at either?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from: J50-1 to P49-1 or J50-4 To P51-1, then turn to [TAG 002: Check & Problem Resolution](#).

- 30** Turn the printer off.
- Disconnect J/P40.
 - Check P40-26 for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Repair or replace the connectors or wiring from: P40-26 to P54-1, P40-26 to P54-4, P40-26 to P50-1, or P40-26 to P50-4, then turn to [TAG 002: Check & Problem Resolution](#)

- 31** Turn the printer off.
- Reconnect J/P40, J/P50, and J/P54.
 - Disconnect J/P12.
 - Turn the printer on.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 32** Turn the printer off and unplug the power cord.
- Disconnect J/P40.
 - Check P40-34 to P12-8 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P40-34 to P12-8, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 33** Reconnect J/P40 and J/P12.
- Disconnect J/P102.
 - Turn on the printer.
 - Check J/P8-6 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Replace the power control #3 board, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 34** Turn off the printer and unplug the power cord.
- Disconnect J/P40.
 - Check P40-35 to P102-1 for continuity to ground.

Is there continuity?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from P40-35 to P102-1, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 35** Turn off the printer.
- Reconnect J/P330.
 - Disconnect J/P323.
 - Turn on the printer.
 - Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #40 in this TAG.

Yes: Continue.

-
- 36** Turn off the printer.
- Reconnect J/P323.
 - Disconnect J/P305.
 - Turn on the printer.
 - Check J/P330-2 for +12Vdc.

Is the voltage +12 Vdc?

No: Go to #39 in this TAG.

Yes: Continue.

-
- 37** Turn off the printer.
- Reconnect J/P305.
 - Disconnect J/P310 (inside the duplex tray).
 - Turn on the printer.
 - Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #4 in this TAG.

- 38** Turn the printer off and unplug the power cord.
- Disconnect J/P305.
 - Check P305-2 and P310-2 for continuity to ground.

Is there continuity?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace connectors or wiring P305-2 to P310-2, then turn to [TAG 002: Check & Problem Resolution](#).

- 39** Turn off the printer and unplug the power cord.
- Disconnect J/P323.
 - Check J323-2 and J305-2 for continuity to ground.

Is there continuity at either?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace the connectors or wiring from J323-2 to J305-2, then turn to [TAG 002: Check & Problem Resolution](#).

- 40** Turn off the printer.
- Reconnect J/P323.
 - Disconnect J/P306.
 - Turn on the printer.
 - Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #45 in this TAG.

- 41** Turn off the printer and unplug the power cord.
- Disconnect J/P331.
 - Check J331-2 to P306-2 for continuity to ground.

Is there continuity?

No: Repair or replace the connectors or wiring from: P330-2 to P331-2, or P330-2 to P323-2.

Yes: Repair or replace the connectors or wiring from J331-2 to P306-2.

-
- 42** Turn off the printer.
- Reconnect J/P310.
 - Disconnect J/P320 and J/P322.
 - Turn on the printer.
 - Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #44 in this TAG.

- 43** Turn off the printer and unplug the power cord.
- Disconnect J/P312.
 - Check for continuity to ground: P312-1 to P320-1, and P312-4 to P322-1

Is there continuity?

No: Replace the duplex control board #2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P312-1 to P320-1, or P312-4 to P322-1, then turn to [TAG 002: Check & Problem Resolution](#).

- 44** Turn off the printer.
- Reconnect J/P320.
 - Turn on the printer.
 - Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the restart side sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the restart paper sensor, then turn to [TAG 002: Check & Problem Resolution](#).

- 45** Turn off the printer.
- Reconnect J/P306.
 - Disconnect J/P319 and J/P318.
 - Turn on the printer.
 - Check J/P330-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Go to #47 in this TAG.

Yes: Continue.

- 46** Turn off the printer.
- Reconnect J/P319.
 - Turn on the printer.
 - Check J/P330-2 for +12 Vdc.

Is the voltage at +12 Vdc?

No: Replace the paper path sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the cover open sensor, then turn to [TAG 002: Check & Problem Resolution](#).

47 Turn off the printer and unplug the power cord.

- Disconnect J/P309.
- Check for continuity to ground:
P309-4 to P319-1, and
P309-3 to P318-1

Is there continuity at either?

No: Replace duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from:
P309-4 to P319-1, or
P309-3 to P318-1;
then turn to [TAG 002: Check & Problem Resolution](#).

TAG 098: -12 Vdc Power Shorted

Error Code: 098

Possible Defects: Connectors or wiring
DC power supply unit
PCL board
IGS board
Signal interface board
External attachment option

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P8, J/P32, J/P33, J/P73, and J/P74 are connected properly.
 - Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Check J/P32-3 for -12 Vdc.

Is the voltage -12 Vdc?

No: Continue.

Yes: Replace PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 3** Turn the printer off.
- Disconnect J/P32.
 - Turn the printer on.
 - Check J/P8-8 for -12 Vdc.

Is the voltage -12 Vdc?

No: Continue.

Yes: Go to #5 in this TAG.

-
- 4** Turn the printer off.
- Disconnect J/P8.
 - Check P8-8 to P32-3 for continuity to ground.

Is there continuity?

No: Replace the DC power supply, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P8-8 to P32-3.

5

Turn the printer off.

- Reconnect J/P32.
- Disconnect J/P74.
- Turn the printer on.
- Check J/P8-8 for -12 Vdc.

Is the voltage -12 Vdc?

No: Replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Does the printer have an attachment option?

No: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7

Turn the printer off.

- Reconnect J/P74.
- Disconnect the DC cable (J/P73) for the attachment option.
- Turn the printer on.

Is the voltage at J/P8-8 -12 Vdc?

No: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the attachment option, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 099: +24 Vdc Power Shorted

Error Code: 099

Possible Defects: DC power supply unit
AC power supply unit
Connectors or wiring
PCL board
IGS board
Power control #2 board
High voltage unit
Paper timing clutch
Upper feed roller clutch
Upper pick-up clutch
Lower pick-up clutch
Lower feed roller clutch
Counter assembly

Possible Defects, Duplex Printers:

Duplex control board #1
Duplex control board #2
Route motor
In solenoid
'C' roller solenoid
'A' roller clutch
Exit solenoid
Restart motor

1

Turn the printer off and unplug the power cord.

- Verify that J/P11, J/P8, J/P32, J/P33, J/P91, J/P303, J/P305, J/P306, J/P310, J/P323, and J/P331 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2

Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

3

Turn the printer off.

- Disconnect J/P330.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #22 in this TAG.

-
- 4** Turn the printer off.
- Reconnect J/P330.
 - Disconnect J/P11.
 - Turn the printer on.
 - Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #11 in this TAG.

Yes: Continue.

- 5** Turn the printer off.
- Reconnect J/P11.
 - Disconnect J/P10.
 - Turn the printer on.
 - Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #7 in this TAG.

Yes: Continue.

- 6** Turn the printer off.
- Reconnect J/P10.
 - Disconnect J/P70.
 - Turn the printer on.
 - Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P10 to P70, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the AC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

- 7** Turn the printer off.
- Reconnect J/P10.
 - Disconnect J/P12.
 - Turn the printer on.
 - Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

8

Turn the printer off.

- Reconnect J/P12.
- Disconnect J/P41.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9

Turn the printer off.

- Reconnect J/P41.
- Disconnect J/P23.
- Turn the printer on.
- Check J/P8-11 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).

10

Turn off the printer and unplug the power cord.

- Disconnect J/P41.
- Check P41-35 to P23-5 for continuity to ground.

Is there continuity?

No: You have failed to isolate the problem. Return to the beginning of this TAG.

Yes: Repair or replace the connectors or wiring from P41-35 to P23-5, then turn to [TAG 002: Check & Problem Resolution](#).

11

Turn the printer off.

- Reconnect J/P11.
- Disconnect J/P91.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #21 in this TAG.

Yes: Continue.

-
- 12** Turn the printer off.
- Reconnect J/P91.
 - Disconnect J/P40 and J/P41.
 - Turn the printer on.
 - Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 13** Turn the printer off.
- Reconnect J/P40.
 - Turn the printer on.
 - Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #16 in this TAG.

Yes: Continue.

- 14** Turn the printer off.
- Reconnect J/P41.
 - Disconnect J/P81.
 - Turn the printer on.
 - Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P41-26 to P81-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 15** Turn the printer off.
- Reconnect J/P81.
 - Disconnect J/P82.
 - Turn the printer on.
 - Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from J81-1 to P82-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the counter assembly, then turn to [TAG 002: Check & Problem Resolution](#).

16

Turn the printer off.

- Reconnect J/P41.
- Disconnect J/P69.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the lower pick-up roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

17

Turn the printer off.

- Reconnect J/P69.
- Disconnect J/P65.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the paper timing roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

18

Turn the printer off.

- Reconnect J/P65.
- Disconnect J/P66.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the upper feed roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

19

Turn the printer off.

- Reconnect J/P66.
- Disconnect J/P67.
- Turn the printer on.
- Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the lower feed roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 20** Turn the printer off.
- Reconnect J/P67.
 - Disconnect J/P68.
 - Turn the printer on.
 - Check J/P8-13 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from:

P40-10 to J69-1,
P40-11 to J65-1,
P40-11 to J66-1,
P40-11 to J67-1, or
P40-11 to J 68-1;

then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the upper pick-up roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 21** Turn the printer off and unplug the power cord.
- Disconnect J/P8, J/P11, and J/P91.
 - Check P8-11 to P11-1 and P8-13 to P91-1 for continuity to ground.

Is there continuity?

No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from:

P8-13 to P91-1, or
P8-11 to P11-1;

then turn to [TAG 002: Check & Problem Resolution](#).

-
- 22** Turn the printer off.
- Reconnect J/P330.
 - Disconnect J/P323.
 - Turn the printer on.
 - Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #27 in this TAG.

Yes: Continue.

-
- 23** Turn the printer off.
- Reconnect J/P323.
 - Disconnect J/P305.
 - Turn the printer on.
 - Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Go to #26 in this TAG.

Yes: Continue.

-
- 24** Turn the printer off.
- Reconnect J/P305.
 - Disconnect J/P310 (inside duplex tray).
 - Turn the printer on.
 - Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #29 in this TAG.

- 25** Turn the printer off and unplug the power cord.
- Disconnect J/P305.
 - Check P305-1 and P310-1 for continuity to ground.

Is there continuity?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace the connectors or wiring from P305-1 to P310-1, then turn to [TAG 002: Check & Problem Resolution](#).

- 26** Turn the printer off and unplug the power cord.
- Disconnect J/P323.
 - Check J323-1 and J305-1 for continuity to ground.

Is there continuity?

No: Return to the beginning of this TAG and start again.

Yes: Repair or replace the connectors or wiring from J323-1 to J305-1, then turn to [TAG 002: Check & Problem Resolution](#).

- 27** Turn the printer off.
- Reconnect J/P323.
 - Disconnect J/P306.
 - Turn the printer on.
 - Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Go to #31 in this TAG.

-
- 28** Turn the printer off and unplug the power cord.
- Disconnect J/P331.
 - Check J331-1 and P306-1 for continuity to ground.

Is there continuity?

No: Repair or replace the connectors or wiring from:
P330-1 to P331-1 or
P330-1 to P323-1;
then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P331-1 to P306-1, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 29** Turn the printer off.
- Reconnect J/P310.
 - Disconnect J/P321.
 - Turn the printer on.
 - Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the restart motor, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 30** Turn the printer off.
- Reconnect J/P321.
 - Disconnect J/P312.
 - Turn the printer on.
 - Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the connectors or wiring from P312 to J321, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the duplex control board #2, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 31** Turn the printer off.
- Reconnect J/P306.
 - Disconnect J/P313.
 - Turn the printer on.
 - Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the route motor, then turn to [TAG 002: Check & Problem Resolution](#).

32

Turn the printer off.

- Reconnect J/P313.
- Disconnect J/P314.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the “in” solenoid, then turn to [TAG 002: Check & Problem Resolution](#).

33

Turn the printer off.

- Reconnect J/P314.
- Disconnect J/P315.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the “C” roller solenoid, then turn to [TAG 002: Check & Problem Resolution](#).

34

Turn the printer off.

- Reconnect J/P315.
- Disconnect J/P316.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue.

Yes: Replace the “A” roller clutch, then turn to [TAG 002: Check & Problem Resolution](#).

35

Turn the printer off.

- Reconnect J/P316.
- Disconnect J/P317.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Continue

Yes: Replace the exit solenoid, then turn to [TAG 002: Check & Problem Resolution](#).

Turn the printer off.

- Reconnect J/P317.
- Disconnect J/P308 and J/P309.
- Turn the printer on.
- Check J/P330-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair the duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from:

P309 pins 7 through 10 to J313 pins 1 through 4

P308-1 to J314-1

P308-2 to J315-1

P308-3 to J316-1, or

P308-4 to P317-1;

then turn to [TAG 002: Check & Problem Resolution](#).

TAG 100: PCL Board Interface Malfunction

Error Code: 100, 132, 140, 145, 160-162, 170-172, 180-182

Symptoms: PCL board failure

Possible Defects: Connectors or wiring
PCL board

1

Turn off the printer and unplug the power cord.

- Verify that J/P40, J/P41, J/P33, and J/P91 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2

Was an error code displayed during the power-on-reset?

No: Refer to the mechanical malfunctions cross-reference table in [“Mechanical Malfunction/ TAG Cross-Reference” on page 2-12](#).

Yes: Continue.

3

Was the error code the same as the one used to enter this TAG?

No: Refer to the error code cross-reference table in [“Error Code/TAG Cross-Reference” on page 2-3](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 101: IGS Controller Diagnostic Failure

Error Code: 101

Possible Defects: IGS board

1 Power-on-reset the printer.

Is error 101 displayed on the operator panel.

No: The problem may be caused by power fluctuation. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the IGS controller, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 130: Diskette/Disk Drive Malfunction

Error Code: 130, 131, 133, 134, 450, 451, 572-576, 586

Symptoms: Test prints do not run

Possible Defects: Diskette
Disk drive assembly
Connectors or wiring
PCL board
IGS board
DC power supply

Electrical problems on wires J/P31 to J/P79 and J/P31 to ground may cause diskette and disk drive malfunctions. If this TAG does not correct the problem, suspect an intermittent failure from the disk drive to the IGS board cable and replace the cable from J/P31 to J/P79 to J/P30.

The causes of error code 574 or 576 may alter the information on the diskette. You may have to replace the diskette with another known to be good.

-
- 1** Verify that a diskette has been inserted properly.
- Verify that the write/protect notch is closed.
 - Turn off the printer.
 - Verify that J/P8, J/P77, J/P79, and J/P31 are connected properly.
 - Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2 **Is error code 451 displayed?**

No: Go to #5 in this TAG.

Yes: Continue.

3 Power-on-reset the printer.

Is error code 451 still displayed?

No: Go to #5 in this TAG.

Yes: Continue.

4 Replace the diskette with another diskette known to be correct for the customer's system configuration.

- Power-on-reset the printer.

Is error code 451 still displayed?

No: The diskette was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the disk drive assembly, then turn to [TAG 002: Check & Problem Resolution](#).

5 **Is error code 572 displayed?**

No: Go to #7 in this TAG.

Yes: Continue.

6 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check P31-28 to P79-28 for continuity to ground.

Is there continuity?

No: Replace the disk drive assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

7 **Is error code 573 displayed?**

No: Go to #13 in this TAG.

Yes: Continue.

8 Turn the printer on.

- Check J/P8-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9 Check J/P77-4 for +5 Vdc.**Is the voltage +5 Vdc?**

No: Repair or replace the connectors or wiring from P8-1 to P77-4, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

10 Check J/P8-3 for +12 Vdc.**Is the voltage +12 Vdc?**

No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

11 Check J/P77-1 for +12 Vdc.**Is the voltage +12 Vdc?**

No: Repair or replace the connectors or wiring from P8-3 to P77-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

12 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check for continuity to ground: P31-34 to P79-34, P31-32 to P79-32, P31-16 to P79-16, and

P31-10 to P79-10.

Is there continuity on any?

No: Replace the disk drive assembly. If this does not resolve the problem, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

13 Is error code 574 displayed?

No: Go to #16 in this TAG.

Yes: Continue.

14 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check P31-30 to P79-30 for continuity.

Is there continuity?

No: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

15 Check for continuity to ground: P31-18 to P79-18, P31-24 to P79-24, and P31-26 to P79-26.

Is there continuity on any?

No: Replace the disk drive assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

16 Is error code 575 displayed?

No: Go to #18 in this TAG.

Yes: Continue.

17 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check P31-20 to P79-20 and P31-18 to P79-18 for continuity.

Is there continuity on each?

No: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the disk drive assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

18 Is error code 576 displayed?

No: Go to #21 in this TAG.

Yes: Continue.

19 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check for continuity:

P31-22 to P79-22,
P31-24 to P79-24,
P31-26 to P79-26,
P31-28 to P79-28, and
P31-32 to P79-32.

Is there continuity on each?

No: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

20 Check for continuity to ground:
P31-20,
P31-22,
P31-26, and
P31-32.

Is there continuity to ground on any?

No: Replace the disk drive assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace wire harness W46.

21 **Is error code 130, 131, 133, or 134 displayed?**

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

22 **Can the printer run test prints?**

No: Continue.

Yes: Replace the disk drive assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

23 Turn the printer off and unplug the power cord.

- Disconnect J/P31 and J/P79.
- Check P31-34 to P79-34 for continuity to ground.

Is there continuity?

No: Replace the disk drive assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 200: IGS Internal Communication Malfunction

Error Code: 401, 454, 455, 500-509, 520-530, 540-566, 570, 571, 577-585, 600-605

Symptoms: IGS board failure

Possible Causes: IGS program error

Possible Defects: Wiring or connectors
IGS board
Software
Signal interface

1

Turn the printer off and unplug the power cord.

- Verify that J/P31, J/P32, J/P33, J/P79, and J/P74 are connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: A loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2

Was an error code displayed?

No: Refer to the mechanical malfunctions cross-reference table in [“Mechanical Malfunction/ TAG Cross-Reference” on page 2-12](#).

Yes: Continue.

3

If the operator panel displayed more than one error code, was it the first code that displayed on the panel that led you to this TAG?

No: Look in [“Error Code/TAG Cross-Reference” on page 2-3](#) for the first error code that displayed, then turn to the TAG referenced in the table.

Yes: Continue.

4

Turn the printer off.

- Disconnect J/P31 and J/P79.
- Check P31-34 for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Replace wire harness W46, then turn to [TAG 002: Check & Problem Resolution](#).

5

Replace the IGS board, making sure that IGS EPROM version is correctly matched to the software release installed on the printer.

- Power-on-reset the printer.

Has the problem been resolved?

No: Reinstall the original IGS board and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Does this printer contain a hard drive?

No: Continue.

Yes: Go to #8 in this TAG.

7 Replace the software diskettes in drives A and B.

- Power-on-reset the printer.

Has the problem been resolved?

No: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Software diskettes were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

8 Disconnect J/P76 (hard drive cable).

- Insert the emulation diskette into drive A.
- Power-on-reset the printer.

Has the problem been resolved?

No: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Reconnect J/P76 and reload the software onto the hard drive; instructions for loading software onto the printer's hard drive are outlined in the *Guide to Operations*. Then turn to [TAG 002: Check & Problem Resolution](#).

TAG 201: IGS-PCL Interface Malfunction

Error Code: 121-127, 199-215, 380-387
Symptoms: Communication failure between the IGS board and the PCL board
Possible Causes: Insufficient delay period between power off and power on
Electrical spikes
Possible Defects: Connectors or wiring
PCL board
IGS board
DC power supply
High voltage power supply

1 Is error code 201 displayed?

No: Go to #3 in this TAG.

Yes: Continue.

2 Turn the printer off and unplug the power cord.

- Verify that J/P33 is connected properly.
- Power-on-reset the printer.

Has the problem been resolved?

No: Confirm that the IGS firmware is correct for the version of software being used; then replace the IGS board. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

3 Is error code 121 or 123 displayed?

No: Go to #6 in this TAG.

Yes: Continue.

4 Turn the printer off and unplug the power cord.

- Confirm that J/P33 is connected properly.

Are the connectors or wiring damaged?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

5 Replace the PCL board.

- Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Replace the IGS board.

- Power-on-reset the printer.

Has the problem been resolved?

No: If error code 121 or 123 brought you to this TAG, replace the DC or high voltage power supply, then turn to [TAG 002: Check & Problem Resolution](#). For all other error codes, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 405: IGS Bit-Map RAM Malfunction

Error Code: 606, 600, 610

Possible Defects: IGS board

-
- 1** The IGS bit-map RAM has malfunctioned. Replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 500: +5 Vdc Power Malfunction

Error Code:	500
Symptoms:	Operator panel blank with AC power supply cooling fan running
Possible Defects:	DC fuse DC power supply unit Connectors or wiring Operator panel circuit board PCL board IGS board Disk drive assembly LED printhead assembly Attachment option AC power supply Signal interface board Duplex control board #1 Duplex control board #2

-
- 1** Turn off the printer and unplug the power cord.
- Confirm that J/P94, J/P4, J/P41, J/P91, J/P90, J/P6, and J/P8 are connected properly.
 - Power-on-reset the printer.

Is the operator panel still blank?

No: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 2** Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Go to #7 in this TAG.

Yes: Continue.

-
- 3** Check J/P91-5 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from P8-10 to P91-5, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 4** Check J/P94-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from P8-14 to J94-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

5

Check J/P42-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the connectors or wiring from P94-1 to J/P90-1 to P42-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6

Turn the printer off and unplug the power cord.

- Disconnect J/P8 and J/P42.
- Check P42-20 to P8-15 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P42-20 to J/P90-20 to J/P94-2 to P8-15, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the operator panel circuit board. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, wire harness W72, or wire harness W63, then turn to [TAG 002: Check & Problem Resolution](#).

7

Turn the printer off.

- Disconnect J/P330.
- Turn the printer on.
- Check J/P8-1 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Go to #15 in this TAG.

8

Turn the printer off.

- Disconnect J/P8.
- Turn the printer on.
- Check J/P330-3 for +5 Vdc.

Is the voltage +5 Vdc?

No: Go to #22 in this TAG.

Yes: Continue.

9

Turn the printer off.

- Reconnect J/P8.
- Disconnect J/P77.
- Turn the printer on.
- Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the disk drive assembly, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 10** Turn the printer off.
- Reconnect J/P77.
 - Disconnect J/P27.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the LED printhead assembly, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 11** Turn the printer off.
- Reconnect J/P27.
 - Disconnect J/P91.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 12** Turn the printer off.
- Reconnect J/P91.
 - Disconnect J/P32.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Continue.

Yes: Replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 13** Turn the printer off.
- Reconnect J/P32.
 - Disconnect J/P94.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.

Is the voltage +5 Vdc?

No: Replace wire harness W36, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 14** Turn the printer off.
- Disconnect J/P42.
 - Check P42-1 for continuity to ground.
- Is there continuity to ground?**
- No:** Replace the operator panel circuit board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring from P94-1 to J/P90-1 to P42-1, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 15** Turn the printer off.
- Reconnect J/P330.
 - Disconnect J/P331.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.
- Is the voltage +5 Vdc?**
- No:** Go to #17 in this TAG.
- Yes:** Continue.
-

- 16** Turn the printer off.
- Reconnect J/P331.
 - Disconnect J/P306.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.
- Is the voltage +5 Vdc?**
- No:** Repair or replace the connectors or wiring from J331-3 to P306-3, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 17** Turn the printer off.
- Reconnect J/P331.
 - Disconnect J/P333.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.
- Is the voltage +5 Vdc?**
- No:** Go to #20 in this TAG.
- Yes:** Continue.
-

- 18** **Does the printer have an attachment option?**
- No:** Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

-
- 19** Turn the printer off.
- Reconnect J/P333.
 - Disconnect J/P73, the DC cable for the attachment option.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.
- Is the voltage +5 Vdc?**
- No:** Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the attachment option, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 20** Turn the printer off.
- Reconnect J/P333.
 - Disconnect J/P323.
 - Turn the printer on.
 - Check J/P8-10 for +5 Vdc.
- Is the voltage +5 Vdc?**
- No:** Replace wire harness W127 or W128, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 21** Turn the printer off.
- Disconnect J/P310, found inside the duplex tray.
 - Check P310-3 for continuity to ground.
- Is there continuity to ground?**
- No:** Replace the duplex control board #2, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring from J323-3 to J/P305-3 to P310-3, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 22** Turn the printer on. Use extreme caution:
- Check from J/P6-1 to J/P6-2 (neutral) for 100 Vac or more.
- Is the voltage at least 100 Vac?**
- No:** Continue.
- Yes:** Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 23** Use extreme caution: Check from J/P4-7 to J/P4-8 (neutral) for 100 Vac or more.
- Is the voltage at least 100 Vac?**
- No:** Replace the AC power supply unit.
- Yes:** Repair or replace the connectors or wiring from:
P4-7 to P6-1 or
P4-8 to P6-2;
then turn to [TAG 002: Check & Problem Resolution](#).
-

TAG 600: AC Power Malfunction

Error Code:	600
Symptoms:	Operator panel blank with fans not running Printer Open indicator on Circuit breaker keeps tripping
Possible Defects:	Upper fuse in the AC power supply AC power supply unit DC power supply unit Connectors or wiring Power control #2 board Power control #3 board Fuser unit Back cover interlock switch Front cover interlock switch Top cover interlock switch Toner supply motor Cooling fans Jogging motor Main drive motor Vacuum transport unit Operator panel assembly

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P44, J/P84, J/P4, J/P9, J/P12, J/P40, J/P6, and the AC power cord are connected properly.
 - Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Turn the printer off.
- Open the back cover and install an interlock by-pass tool.
 - Turn the printer on. Use extreme caution:
 - Check from J/P9-2 to J/P9-1 for +100 Vac.

Is the voltage +100 Vac?

No: Go to #4 in this TAG.

Yes: Continue.

-
- 3** Turn the printer off and unplug the power cord.
- Disconnect J/P40 and J/P12.
 - Check P40-29 to P12-3 and P40-30 to P12-4 for continuity.

Is there continuity on each?

No: Repair or replace the connectors or wiring as needed.

Yes: Replace the power control #2 board. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

4 Does the **PRINTER OPEN** light come on with all the covers closed?

No: Go to #25 in this TAG.

Yes: Continue.

5 Operate the top and front cover interlock switch actuators.

Are the interlock switch actuators working properly?

No: Repair or replace any defective actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6 Use extreme caution: Check from J/P4-4 to J/P4-3 for +100 Vac.

Is the voltage +100 Vac?

No: Continue.

Yes: Repair or replace the connectors or wiring from: P9-2 to P4-4 or P9-1 to P4-3. If this is a duplex printer and the problem remains, go to [TAG 900: Top Cover Interlock Malfunction, Duplex](#). If this corrects the problem, turn to [TAG 002: Check & Problem Resolution](#).

7 Turn the printer off and unplug the power cord.

- Remove the upper fuse in the AC power supply unit.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Continue.

Yes: Go to #10 in this TAG.

8 Replace the upper fuse in the AC power supply unit.

- Reconnect the power.
- Power-on-reset the printer.

Was the power-on-reset successful?

No: Go to #14 in this TAG.

Yes: Continue.

9 Remove the developer unit.

- Run diagnostic test 010 for approximately 5 seconds, then stop.
- Turn the printer off and unplug the power cord.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Go to #12 in this TAG.

Yes: A defective fuse was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

10

Reinstall the fuse.

- Disconnect J/P4.
- Close the top cover.
- Check P4-5 to P4-6 for continuity.

Is there continuity?

No: Go to #34 in this TAG.

Yes: Continue.

11

Remove the AC power supply unit.

- Operate the front cover interlock switch.
- Check for continuity as you operate the front interlock switch.

Does the front cover interlock switch have continuity?

No: Repair or replace the front interlock switch, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the AC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

12

Disconnect J/P13.

- Install a new upper fuse in the AC power supply unit.
- Run diagnostic test 010 for approximately 5 seconds, then stop.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

13

Disconnect J/P18.

- Check P13-5 to P18-1 for continuity to ground.

Is there continuity to ground?

No: Replace the toner supply motor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P18-1 to P13-5, then turn to [TAG 002: Check & Problem Resolution](#).

14

Turn off the printer.

- Disconnect J/P9.
- Install a new upper fuse in the AC power supply unit.
- Turn the printer on for 5 seconds, then off.
- Remove the upper fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Go to #20 in this TAG.

Yes: Continue.

-
- 15** Reconnect J/P9.
- Install a good upper fuse in the AC power supply unit.
 - Disconnect J/P13 and J/P14.
 - Turn the printer on for 5 seconds, then off.
 - Remove the fuse.
 - Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 16** Reconnect J/P13 and J/P14.
- Disconnect J/P20, J/P21, J/P22, and J/P326 (duplex printers).
 - Power-on-reset the printer.
 - Wait 2-1/2 minutes, then turn the printer off.
 - Remove the upper fuse in the AC power supply unit.
 - Check the fuse for continuity.

Does the fuse have continuity?

No: Repair or replace connectors or wiring that have continuity to ground: P21-1 to P13-4, P22-1 to P13-6, J326-1 to P13-4, or P20-2 to P14-6; then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 17** Turn the printer off.
- Reconnect J/P21.
 - Turn the printer on for 5 seconds, then off.
 - Remove the upper fuse in the AC power supply unit.
 - Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the large cooling fan assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 18** Turn the printer off.
- Reconnect J/P20.
 - Turn the printer on for 2-1/2 minutes, then off.
 - Remove the upper fuse from the AC power supply unit.
 - Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the main drive motor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

19

Turn the printer off.

- Reconnect J/P22.
- Turn on the printer for 2-1/2 minutes, then off.

Was the power-on-reset successful?

No: Replace the vacuum transport unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the small cooling fan assembly, then turn to [TAG 002: Check & Problem Resolution](#).

20

Reconnect J/P9.

- Disconnect J/P100.
- Install a new upper fuse in the AC power supply unit.
- Run diagnostic test 008 for approximately five seconds, then turn off the printer.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Go to #23 in this TAG.

Yes: Continue.

21

Turn off the printer.

- Reconnect J/P100.
- Install a good upper fuse in the AC power supply unit.
- Disconnect J/P101.
- Run diagnostic test 008 for approximately five seconds, then stop.
- Remove the fuse.
- Check the fuse for continuity.

Does the fuse have continuity?

No: Replace the power control #3 board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

22

Disconnect J/P19.

- Check P101-2 to P19-2 for continuity to ground.

Is there continuity to ground?

No: Replace the jogging motor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P101-2 to P19-2, then turn to [TAG 002: Check & Problem Resolution](#).

23

Disconnect J/P4 and J/P9.

- Check P4-4 to P9-2 and P4-4 to P100-1 for continuity to ground.

Is there continuity to ground?

No: Continue.

Yes: Repair or replace the connectors or wiring from P4-4 to P9-2 or P4-4 to P100-1; then turn to [TAG 002: Check & Problem Resolution](#).

-
- 24** Close the top cover.
- Check P4-5 for continuity to ground.
- Is there continuity?**
- No:** Replace the AC power supply, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the top cover interlock switch assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, repair or replace the connectors or wiring from: P4-5 to J/P84-1 to P131, or P132 to J/P84-2 to P4-6; then turn to [TAG 002: Check & Problem Resolution](#).
-
- 25** **Is the operator panel blank and are the cooling and AC power supply fans off?**
- No:** You have chosen an incorrect TAG. Refer to the mechanical malfunctions cross-reference table in [“Mechanical Malfunction/TAG Cross-Reference” on page 2-12](#), to identify a more appropriate TAG.
- Yes:** Continue.
-
- 26** Turn off the printer and unplug the power cord.
- Check the wall power outlet for proper voltage.
- Is the voltage correct? If the circuit breaker was reset after beginning this TAG, answer no.**
- No:** Go to #28 in this TAG.
- Yes:** Continue.
-
- 27** Unplug power cord from the printer and the wall outlet.
- Check the power cord for continuity.
- Is there continuity?**
- No:** Replace the power cord, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the AC power supply, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 28** Disconnect J/P4.
- Check P4-1 for continuity to ground.
- Is there continuity?**
- No:** Go to #30 in this TAG.
- Yes:** Continue.
-
- 29** Remove the fuser unit.
- Check P4-1 to J/P44-3 to J5-1 to the fuser unit for continuity to ground.
- Is there continuity?**
- No:** Replace the fuser unit, making sure the fuser has the proper voltage rating, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace connectors or wiring that have continuity, then turn to [TAG 002: Check & Problem Resolution](#).
-

-
- 30** Check J4-1 at the AC power supply unit for continuity to ground.
Is there continuity?
No: Continue.
Yes: Replace the AC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 31** Check P4-7 for continuity to ground.
Is there continuity?
No: Go to #33 in this TAG.
Yes: Continue.
-
- 32** Disconnect J/P6.
• Check P4-7 to P6-1 for continuity to ground.
Is there continuity?
No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).
Yes: Repair or replace the connectors or wiring from P4-7 to P6-1, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 33** Check J4-7 at the AC power supply unit for continuity to ground.
Is there continuity?
No: The customer's circuit breaker may be defective. Verify that the wall outlet has the proper voltage. If it does, continue; otherwise, turn to [TAG 002: Check & Problem Resolution](#).
Yes: Replace the AC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 34** Disconnect J/P84.
• Check P4-5 to P84-1 and P4-6 to P84-2 for continuity.
Is there continuity on both?
No: Repair or replace the connectors or wiring that lack continuity, then turn to [TAG 002: Check & Problem Resolution](#).
Yes: Continue.
-
- 35** Check J84-1 to P131 and J84-2 to P132 for continuity.
Is there continuity on both?
No: Repair or replace the connectors or wiring that lack continuity, then turn to [TAG 002: Check & Problem Resolution](#).
Yes: Continue.
-
- 36** Check J131 to J132 (top interlock switch) for continuity while activating the top cover interlock switch.
Is there continuity?
No: Repair or replace the top cover interlock switch, then turn to [TAG 002: Check & Problem Resolution](#).
Yes: You have failed to isolate the problem. Return to the beginning of this TAG.
-

TAG 610: Operator Panel Malfunction

Error Code: 610
Symptoms: One or more message indicators will not light
Incomplete numbers are displayed
Tone does not work properly
All status lights remain on
One or more function keys do not work
Possible Causes: Operator panel
Connectors or wiring
PCL board

- 1** Turn the printer off and unplug the power cord.
- Turn the volume control (on operator panel inside front cover) up fully.
 - Verify that J/P90, J/P42, J/P8, J/P41, and J/P94 are connected properly.
 - Run diagnostic test 001.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2 **Do the status lights stay on continuously?**

No: Continue.

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

3 Turn the printer off and unplug the power cord.

- Disconnect J/P42, J/P91, J/P8, and J/P32.
- Check P8-15 to P42-20 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P8-15 to J/P94-2 to J/P90-20 to P42-20, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

4 Reconnect J/P42, J/P91, J/P8, and J/P32.

- Power-on-reset the printer.
- Press each function key and listen for the tone.
- Test prints may be produced. Press the STOP key or turn the printer off to quit.

Did you hear the tone after pressing each function key?

No: Go to #14 in this TAG.

Yes: Continue.

5 **Is one of the function keys not working properly?**

No: Go to #16 in this TAG.

Yes: Continue.

-
- 6** Turn the printer off and unplug the power cord.
- Disconnect J/P42 and J/P41.
 - Check P42-18 to P41-3 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P42-18 to J/P90-18 to P41-3, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 7** Check P41-3 to P42-18 for continuity to ground.
- Is there continuity?**
- No:** Continue.
- Yes:** Repair or replace the connectors or wiring from P42-18 to J/P90-18 to P41-3, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 8** Check P42-17 to P41-4 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P42-17 to J/P90-17 to P41-4, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 9** Check P41-4 to P42-17 for continuity to ground.
- Is there continuity?**
- No:** Continue.
- Yes:** Repair or replace the connectors or wiring from P42-17 to J/P90-17 to P41-4, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 10** Check P42-16 to P41-5 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P42-16 to J/P90-16 to P41-5, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 11** Check P41-5 to P42-16 for continuity to ground.
- Is there continuity?**
- No:** Continue.
- Yes:** Repair or replace the connectors or wiring from P42-16 to J/P90-16 to P41-5, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 12** Check P42-15 to P41-6 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P42-15 to J/P90-15 to P41-6, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

-
- 13** Check P41-6 to P42-15 for continuity to ground.
- Is there continuity?**
- No:** Replace the operator panel. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring from P42-15 to J/P90-15 to P41-6, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 14** Turn the printer off and unplug the power cord.
- Disconnect J/P41 and J/P42.
 - Check P41-18 to P42-3 for continuity to ground.
- Is there continuity?**
- No:** Continue.
- Yes:** Repair or replace the connectors or wiring from P41-18 to J/P90-3 to P42-3, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 15** Check P41-18 to P42-3 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P41-18 to J/P90-3 to P42-3, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the operator panel. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 16** Run diagnostic test 001.
- Note which status lights come on and what is displayed each time the tone sounds. Some of the status lights may be very dim.
 - Refer to the table at the end of this TAG.
- Is the combination of lights and display you noted identified in the table?**
- No:** Replace the operator panel. If this resolves the problem, then turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 17** Turn the printer off and unplug the power cord.
- Disconnect J/P41 and J/P42.
 - Check the wiring indicated on the table below.
- Is there an open or short to ground continuity?**
- No:** Replace the operator panel. If this resolves the problem, then turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the defective connectors or wiring, then turn to [TAG 002: Check & Problem Resolution](#).
-

Wiring Table

Refer to the table below to check the wiring for an open or short to ground. In the display panel illustrations, “on” status lights (which may be dimly lit) are black.

Table 3-1. Drive Indication

Wiring	Failure Description	Operator Panel
J/P42-7 to J/P90-7 to J/P41-14	Open No indications	
J/P42-7 to J/P90-7 to J/P41-14	Short to ground	All lights ON CLR PAPER JAM light may be very dim
J/P42-11 to J/P90-11 to J/P41-10	Open	
J/P42-12 to J/P90-12 to J/P41-9	Open	
J/P42-13 to J/P90-13 to J/P41-8	Open	
J/P42-14 to J/P90-14 to J/P41-7	Open	
J/P42-8 to J/P90-8 to J/P41-13	Open	
J/P42-8 to J/P90-8 to J/P41-13	Short to ground	CLOSE COVER light may be very dim
J/P42-9 to J/P90-9 to J/P41-12	Open	
J/P42-9 to J/P90-9 to J/P41-12	Short to ground	ADD PAPER light may be very dim

Table 3-1. Drive Indication

Wiring	Failure Description	Operator Panel
J/P42-10 to J/P90-10 to J/P41-11	Open	
J/P42-10 to J/P90-10 to J/P41-11	Short to ground	CLR PAPER light may be very dim
J/P42-11 to J/P90-11 to J/P41-10	Short to ground	
J/P42-12 to J/P90-12 to J/P41-9	Short to ground	
J/P42-13 to J/P90-13 to J/P41-8	Short to ground	
J/P42-14 to J/P90-14 to J/P41-7	Short to ground	

TAG 700: Output Tray Circuit Malfunction

Error Code: 700

Symptoms: Output Tray Full light remains on, will not light, or lights prematurely

Possible Defects: Output tray full sensor
Connectors or wiring
Job offset assembly
PCL board
High capacity output unit

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P50 and J/P40 are connected properly.
 - Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** **Is a high capacity output unit installed on the printer?**

No: Go to #4 in this TAG.

Yes: Continue.

-
- 3** Turn off the printer.
- Remove the high capacity output unit.
 - Turn on the printer.

Has the problem been resolved?

No: Continue.

Yes: The high capacity output unit is malfunctioning. Refer to [Chapter 8, “Options”](#), for instructions on repairing the high capacity unit.

-
- 4** Inspect the output tray full sensor actuator for damage or binding.

Is it in good working order?

No: Replace the actuator, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 5** **Does Output Tray Full come on too soon?**

No: Continue.

Yes: Repair or replace the job offset assembly, then turn to [TAG 002: Check & Problem Resolution](#).

6 Turn the printer off and unplug the power cord.

- Disconnect J/P51 and J/P40.
- Check P40-26 to P51-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-26 to J/P50-4 to P51-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7 Check P40-17 to P51-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-17 to J/P50-5 to P51-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

8 Check P40-13 to P51-3 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P40-13 to J/P50-6 to P51-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9 Verify that the output tray full sensor is mounted properly.

- Verify that it moves down fully.

Is the output tray full sensor in good working order?

No: Replace the sensor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board. If this resolves the problem, then turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace wire harness W71 or W52, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 702: Paper Size Detection Malfunction

Error Code: 702
Symptoms: Incorrect paper size displayed
Possible Defects: Upper cassette
Lower cassette
Upper paper size sensor
Lower paper size sensor
Connectors or wiring
PCL board

- 1** Turn the printer off and unplug the power cord.
- Verify that J/P52 and J/P40 are connected properly.
 - Remove the upper and lower cassettes.
 - Make sure that the rear and side paper guides are securely against the paper.
 - Power-on-reset the printer.
 - Insert the cassette exhibiting the problem.

Does the display still indicate the incorrect paper size?

No: A loose connector or incorrectly positioned paper guides were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 2** Remove the cassette exhibiting the problem.
- Take out the paper.
 - Inspect the two paper size sensing balls on the bottom of the cassette by changing positions of the side and rear paper guides.

Is the paper size sensing mechanism in good working order?

No: Replace the defective cassette, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** Inspect the upper and lower paper size sensor assemblies.

Is either paper size sensor assembly damaged or improperly mounted?

No: Continue.

Yes: Remount, repair or replace the faulty paper size sensor assembly, then turn to [TAG 002: Check & Problem Resolution](#).

- 4** Remove the upper paper size sensor assembly.
- Disconnect the upper circuit board from its mounting.
 - Inspect the paper size sensor circuit board and mounting for damage or contamination.

Is the circuit board or mounting damaged or contaminated?

No: Continue.

Yes: Repair or replace the upper paper size sensor assembly, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 5** Remove the lower paper size sensor assembly.
- Disconnect the circuit board from its mounting.
 - Inspect the paper size sensor circuit board and mounting for contamination or damage.
- Is the circuit board or mounting contaminated or damaged?**
- No:** Continue.
- Yes:** Repair or replace the lower paper size sensor assembly, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 6** **Is the paper size sensing problem occurring with the upper cassette?**
- No:** Go to #8 in this TAG.
- Yes:** Continue.
-

- 7** Turn the printer off and unplug the power cord.
- Disconnect J/P40 and J/P45.
 - Refer to the tables at the end of this TAG.
 - Check the connectors or wiring for the upper paper size sensor.
- Is there a wiring problem?**
- No:** Replace the upper paper size sensor assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring that are defective, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 8** Turn the printer off and unplug the power cord.
- Disconnect J/P40 and J/P43.
 - Refer to the table at the end of this TAG.
 - Check the connectors or wiring for the lower paper size sensor.
- Is there a wiring problem?**
- No:** Replace the lower paper sensor assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring that are defective, then turn to [TAG 002: Check & Problem Resolution](#).
-

Wiring for the Upper Paper Size Sensor

Refer to the following table when performing continuity checks for an open or short to ground for the upper paper size sensor.

Table 3-2. Wiring for the Upper Paper Size Sensor

Wiring Upper Paper Size Sensor				
P40-41	to J/P52-10	to J43-1	to J47-10	to J45-10
P40-42	to J/P52-9	to J43-2	to J47-9	to J45-9
P40-43	to J/P52-8	to J43-3	to J47-8	to J45-8
P40-44	to J/P52-7	to J43-4	to J47-7	to J45-7
P40-45	to J/P52-6	to J43-5	to J47-6	to J45-6
P40-46	to J/P52-5	to J43-6	to J47-5	to J45-5
P40-47	to J/P52-4	to J43-7	to J47-4	to J45-4
P40-48	to J/P52-3	to J43-8	to J47-3	to J45-3
P40-49	to J/P52-2	to J43-9	to J47-2	to J45-2

Wiring for the Lower Paper Size Sensor

Refer to the following table when performing continuity checks for an open or short to ground for the lower paper size sensor.

Table 3-3. Wiring for the Lower Paper Size Sensor

Wiring for the Lower Paper Size Sensor		
P40-41	to J/P52-10	to J43-1
P40-42	to J/P52-9	to J43-2
P40-43	to J/P52-8	to J43-3
P40-44	to J/P52-7	to J43-4
P40-45	to J/P52-6	to J43-5
P40-46	to J/P52-5	to J43-6
P40-47	to J/P52-4	to J43-7
P40-49	to J/P52-2	to J43-9
P40-50	to J/P52-1	to J43-10

TAG 703: Upper Cassette Malfunction

Error Code:	703
Symptoms:	Upper cassette does not load or unload properly Upper cassette does not latch properly
Possible Defects:	Upper cassette Upper pressure lever Upper cassette release latch Upper cassette release Damper assembly Upper cassette release cam Wire cable/roller/spring

-
- 1** Inspect the upper cassette for damage.
- Is the upper cassette in good working order?**
- No:** Replace the upper cassette, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 2** Inspect the following for damage:
- Upper pressure lever
 - Upper cassette release latch
 - Upper cassette release
 - Damper assembly
 - Upper cassette release cam
 - Wire cable/roller/spring
- Are all parts in good working order?**
- No:** Repair or replace the damaged part, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Only mechanical defects and malfunctions can cause this type of problem. Carefully reinspect each part. Repair or replace and defective parts, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 704: Lower Cassette Malfunction

Error Code: 704
Symptoms: Lower cassette does not load or unload properly
Lower cassette does not latch properly
Possible Defects: Lower cassette
Lower pressure lever
Lower cassette release latch
Lower cassette release
Lower cassette release cam
Spring

1 Inspect the lower cassette for damage.

Is the lower cassette in good working order?

No: Replace the lower cassette, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2 Inspect the following for damage:

- Lower pressure lever
- Lower cassette release latch
- Lower cassette release
- Lower cassette release cam
- Spring

Are all the parts in good working order?

No: Repair or replace the damaged part, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Only mechanical defects and malfunctions can cause this type of problem. Carefully reinspect each part. Repair or replace the damaged part, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 705: Multiple Paper Feeding

Error Code: 705

Possible Causes: Wrong weight or type of paper loaded
Paper improperly loaded

Possible Defects: Upper feed roller assembly
Lower feed roller assembly
Paper cassette

1

Remove paper from the cassette.

- Fan the paper stack and place it in the cassette.
- Make sure the paper curl is turned up in the cassette.
- Make sure the paper is under the corner separators.
- Make sure the rear and side paper guides are positioned properly.
- Make sure the paper being used does not have a high static charge.
- Confirm that the paper in the cassettes meets paper specifications, outlined in the Guide to Operations at the back of this manual.
- Run at least 20 test prints.

Has the problem been resolved?

No: Continue.

Yes: The paper being used was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2

Adjust the paper tension lever or pick pressure as outlined in [Chapter 9, “General Printer Maintenance”](#).

Has the problem been resolved?

No: Replace the pick-up roller assembly, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 706: Paper Damaged or Wrinkled

Error Code: 706

Possible Causes: Paper incorrectly loaded
Wrong weight or type of paper loaded
Paper path obstructed

Possible Defects: Fuser unit
Exit roller assembly
Exit pinch roller assembly

- 1** Make sure the paper being used is not damaged.
- Make sure the paper is loaded properly.
 - Make sure the side and rear paper guides in the paper cassettes are positioned properly.
 - Check both upper and lower paper paths for obstructions or roller contamination.
 - Confirm that the paper in the cassettes meets paper specifications, outlined in the Guide to Operations at the back of this manual.
 - Power-on-reset the printer.
 - Run test prints from the upper cassette.

Are the prints wrinkled or damaged?

No: Continue.

Yes: Go to #3 in this TAG.

- 2** Remove the upper cassette.
- Power-on-reset the printer.
 - Run test prints from the lower cassette.

Are the prints wrinkled or damaged?

No: The paper in use was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** Run a test print from the cassette exhibiting the problem.

Is the print on the paper skewed?

No: Continue.

Yes: Go to [TAG 807: Misregistered/Skewed Prints \(Simplex\)](#).

- 4** Remove the exit cover assembly.
- Inspect the exit roller assembly for damage, wear, or contamination.
 - Inspect the exit pinch roller for damage, wear, or contamination.

Is either part damaged, worn, or contaminated?

No: Replace the fuser unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the part as needed, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 707: Upper Paper Guide Assembly Not Closing

Error Code: 707

Possible Causes: Obstructions

Photoconductor unit front or rear latch arm springs

Photoconductor unit latch arms in incorrect position

Upper paper guide latching mechanism damaged or binding

Front or rear photoconductor unit guides damaged

Possible Defects: Photoconductor latch arms

Upper paper guide latch

Photoconductor guide rails

1

Check under the upper paper guide assembly for obstructions.

- Remove the photoconductor unit from the printer.
- Inspect the front and rear photoconductor unit latch arm springs for damage.
- Inspect the front and rear photoconductor unit guide rails for damage.
- Make sure there are no obstructions in the mounting area of the photoconductor unit.
- Make sure the upper paper guide latching mechanism is functioning properly.
- Make sure the photoconductor unit latch arms are in the upper position.

Are all parts in good working order?

No: Repair or replace any malfunctioning parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

2

Remove the photoconductor unit.

- Close and lock the upper paper guide.

Did the upper paper guide lock into place?

No: Replace the upper paper guide, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Only mechanical defects and malfunctions can cause this type of problem. Go to #1 in this TAG and carefully reinspect each part.

TAG 750: Counter Malfunction

Error Code: 750
Symptoms: Counter does not count
Counter counts too often
Consumable components require replacement too frequently
Possible Defects: Counter assembly
Connectors or wiring
PCL board

1 Run diagnostic test 007.
Is the counter functioning properly?
No: Continue.
Yes: The counter is working correctly. Turn to [TAG 002: Check & Problem Resolution](#).

2 Verify that J/P41, J/P81, and J/P82 are connected properly.
• Run diagnostic test 007.
Is the counter functioning properly?
No: Continue.
Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

3 **Is the counter either counting when it shouldn't or counting too many times?**
No: Go to #5 in this TAG.
Yes: Continue.

4 Replace the counter.
• Run test prints.
Has the problem been resolved?
No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
Yes: The counter was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

5 Check TP4-26 for +24 Vdc.
Is the voltage +24 Vdc?
No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
Yes: Continue.

6 Check TP4-25 for +24 Vdc.
Is the voltage +24 Vdc?
No: Go to #8 in this TAG.
Yes: Continue.

7

Run test prints.

- Check TP4-25 for a voltage change from +24 Vdc to 0 Vdc while running the prints.

Does the voltage change from +24 Vdc to 0 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the counter, then turn to [TAG 002: Check & Problem Resolution](#).

8

Turn the printer off and unplug the power cord.

- Disconnect J/P41 and J/P82.
- Check P41-26 to J82-1 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-26 to J/P81-1 to J82-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9

Check P41-25 to J82-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-25 to J/P81-2 to J82-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the counter. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 751: Main Drive Motor Runs Continuously

Error Code: 751

Possible Defects: Power control #2 board
Connectors or wiring
PCL board

1

Turn the printer off and unplug the power cord.

- Disconnect J/P12 and J/P40.
- Check P40-33 for continuity to ground.

Is there continuity?

No: Replace the power control #2 board. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P40-33 to P12-7, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 753: External Communications Malfunction

Error Code:	753
Symptoms:	Test prints can be made but jobs do not run Jobs do not print correctly
Possible Causes:	Improper DIP switch settings Host computer Improper application
Possible Defects:	IGS board communications cable Cable connectors Signal interface board Diskette Wrap connector DC power supply unit Attachment options.

Note

Communication problems may require trial replacement of numerous parts. After each trial replacement, run the job that exhibited the failure.

1

Turn the printer off and unplug the power cord.

- Verify that J/P8, J/P32, J/P74, and J/P92 are connected properly.
- Verify that all communication cables are attached properly.
- Verify that the correct diskette is installed in the printer.
- Confirm that the DIP switches on the signal interface board are set to their proper positions.
- Power-on-reset the printer.
- Confirm that the printer's soft configuration is set properly.
- Run the failing job.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors, software configuration, or DIP switches were at fault. Determine which of these is at fault, correct the problem, then turn to [TAG 002: Check & Problem Resolution](#).

2

Turn the printer off.

- Recheck the diskette for suitability.
- Verify that the DIP switch settings on signal interface boards are correct.
- Power-on-reset the printer.
- Confirm that the printer's software configuration is set correctly to the interface you are using.

Has the problem been resolved?

No: Continue.

Yes: Software configuration or DIP switch settings were at fault. Determine which of these is at fault, correct the problem, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 3** Turn off the printer and unplug the power cord.
- Remove fuse FH2, which is mounted to the signal interface board, and check for continuity.

Is there continuity?

No: Install a new fuse and retest. If the fuse is okay, turn to [TAG 002: Check & Problem Resolution](#). If the new fuse fails, replace the signal interface board or attachment option and install a new fuse, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 4** Disconnect the interface cable from the printer.
- Disconnect any attachment option.
 - Install the RS-232C and RS-422 wrap connectors.
 - Run diagnostic test 103.

Did the diagnostic test run properly?

No: Continue.

Yes: Go to #11 in this TAG.

- 5** Turn the printer off and unplug the power cord.
- Inspect J/P71 (RS-232C), J/P72 (RS-422), and J/P74 for connector body cracks or damaged pins.

Is there a problem with the connectors or pins?

No: Go to #7 in this TAG.

Yes: Continue.

- 6** Replace the signal interface board.
- Run diagnostic test 103.

Did the diagnostic test run properly?

No: Continue.

Yes: The signal interface board was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 7** Open the back cover and install an interlock by-pass tool.
- Power-on-reset the printer.
 - Check J/P32-10 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the connectors or wiring from P8-6 to P32-10, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 8** Check J/P32-3 for -12 Vdc.

Is the voltage -12 Vdc?

No: Continue.

Yes: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

9 Check J/P8-8 for -12 Vdc.

Is the voltage -12 Vdc?

No: Replace the DC power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace connectors or wiring from P8-8 to P32-3, then turn to [TAG 002: Check & Problem Resolution](#).

10 Does the problem appear while using RS-232C communications?

No: The problem may be caused by the IGS board, signal interface board, host computer, or host interface cable. Determine which of these are at fault, correct the problem, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

11 Turn the printer off and unplug the power cord.

- Install a breakout box on the printer to confirm that the host interface cable works as outlined in the table that follows.
- Reconnect all communication lines.
- Reconnect any external attachment option.
- Power-on-reset the printer.
- Run the failing job again.

Table 3-4. RS-232 Cable Reference Table

Host Computer			Printer			Description
Signal	Pin #	Directions	Pin #	Signal		
FG	1			1	FG	
SG	7			7	SG	
TD	2	—	<	2	TD	Data Out (status)
TD	2	<	—	3	RD	Data In (CMD/Data)
RTS	4	—	<	4	RTS	Optional; continuous positive voltage for host computers that require a “printer present” indication.
CTS	5	<		5	CTS	Must go to a positive voltage from the host computer. It is only looked at by the printer at power-on initialization.
DSR	6	<	—			
DTR	20	—		20	DTR	Depends on printer soft configuration option 15. DTR will always be a positive voltage if set to “DTR High.” DTR will change from a positive to a negative voltage if set to “DTR Pacing” and the buffer is full

Does your cable work as outlined in the Cable Reference Table above?

No: The problem appears to be related to the host computer or host interface cable. Correct the problem, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: The problem may be caused by the IGS board, signal interface board, or outdated printer software. Determine which of these is at fault, correct the problem, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 754: Attachment Option Malfunction

Error Code:	754
Symptoms:	Job fails only when an attachment option is used.
Possible Causes:	Lack of voltage
Possible Defects:	Attachment option Communication cables Cable connectors Signal interface board Signal interface board fuse IGS board Host computer Host interface cable

Communication problems may require trial replacement of numerous parts. After each trial replacement, run the job that exhibited failure.

-
- 1** Turn off the printer and unplug the power cord.
- Disconnect all attachment cables.
 - Open the back cover and install an interlock by-pass tool.
 - Confirm that J/P8, J/P32, and J/P74 are connected properly.
 - Confirm that the signal interface board DIP switches are set correctly.
 - Reinstall all communication cables.
 - Power-on-reset the printer.
 - Confirm that the printer has been correctly configured using the printer's soft configuration mode.
 - Run the failing job.

Has the problem been resolved?

No: Continue.

Yes: Loose or damaged connectors, software configuration, or DIP switches were at fault.
Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Turn the printer off and unplug the power cord.
- Check the signal interface board fuse for continuity.

Does the fuse have continuity?

No: Continue.

Yes: Go to #5 in this TAG.

-
- 3** Disconnect the cables from the attachment option to the printer.
- Replace the signal interface board fuse.
 - Turn on the printer for five seconds, then turn it off.
 - Check the signal interface board fuse for continuity.

Does the fuse have continuity?

No: Replace the signal interface board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

4

Reconnect the attachment cables.

- Turn on the printer for five seconds, then turn it off.
- Check the signal interface board fuse for continuity.

Does the fuse have continuity?

No: Replace the attachment option, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: The signal interface board fuse was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

5

Turn on the printer.

- Check for the indicated voltages:
 - J73-1 should be +5 Vdc;
 - J73-3 should be +12 Vdc;
 - J73-4 should be -12 Vdc;
 - J73-6 should be +5 Vdc.

Are all voltages correct?

No: Replace the signal interface board. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this doesn't resolve the problem, go to [TAG 753: External Communications Malfunction](#), step 4.

Yes: Continue.

6

Turn off the printer and unplug the power cord.

- Replace the external attachment option.
- Reconnect all communication cables.
- Run the failing job.

Has the problem been resolved?

No: The problem appears to be related to the host computer or the host interface cable. Correct the problem, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: The external attachment option was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

TAG 800: Prints Blank or With Dark Horizontal Bands

Error Code: 800

Possible Defects: Photoconductor unit,
Printhead assembly
IGS board
Main drive gear assembly
Connectors or wiring
Transfer charger
High voltage unit
Upper paper guide assembly
Developer unit

If there is a developed image on the paper other than dark horizontal bands, follow [TAG 804: Prints With Light Horizontal Bands](#).

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P7, J/P27, J/P41, J/P23, J/P30, J/P31, and transfer charger high voltage unit lead are connected properly.
 - Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors or contamination were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** **Have the photoconductor unit, main charger, developer unit, and toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

-
- 4** Replace the photoconductor unit and main charger.

- Run test prints.

Has the problem been resolved?

No: Reinstall original photoconductor unit and main charger and continue.

Yes: The photoconductor unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 5** Replace the developer unit and toner cartridge.
- Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original developer unit and continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#). If the problem recurs, the toner carrier mix may be old or contaminated.
-
- 6** Produce a developed image on the photoconductor.
- Is a developed image on the photoconductor?**
- No:** Go to #10 in this TAG.
- Yes:** Continue.
-
- 7** Remove and clean the transfer charger unit.
- Clean the transfer charger unit contacts in the upper paper guide.
 - Inspect the transfer charger contacts for proper alignment.
 - Reinstall the transfer charger unit.
 - Power-on-reset the printer.
 - Run test prints.
- Has the problem been resolved?**
- No:** Continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 8** Turn the printer off and unplug the power cord.
- Remove the transfer charger unit.
 - Check the lower transfer charger unit contact, with the upper paper guide assembly in its fully upright position, for continuity to ground.
- Is there continuity?**
- No:** Replace the upper paper guide assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 9** Replace the transfer charger unit.
- Power-on-reset the printer.
 - Run test prints.
- Has the problem been resolved?**
- No:** Replace the upper paper guide assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** The transfer charger unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 10** Run diagnostic test 111.
- Watch the printhead LEDs while the test is running.
- Do the LEDs illuminate?**
- No:** Go to #18 in this TAG.
- Yes:** Continue.
-
- 11** **Are the prints blank without dark bands?**
- No:** Go to #15 in this TAG.
- Yes:** Continue.
-
- 12** Remove the photoconductor unit and place it in its protective packaging.
- Remove the developer unit.
 - Inspect the drive coupling on the developer unit for damage.
- Is the coupling damaged?**
- No:** Continue.
- Yes:** Replace the developer unit, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 13** Rotate the drive coupling on the developer unit clockwise.
- Watch the magnetic brush.
- Does the magnetic brush turn?**
- No:** Replace the developer unit, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 14** Reinstall the photoconductor unit.
- Run diagnostic test 009.
 - Watch the developer drive coupling at the rear of the developer unit cavity.
- Does the developer drive coupling turn?**
- No:** Repair or replace the main drive gear assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 15** **Do the prints have one or more horizontal dark bands?**
- No:** The problem has not been identified. Go back to [TAG 001: Troubleshooting a Problem](#) and begin again.
- Yes:** Continue.

-
- 16** Turn the printer off and unplug the power cord.
- Remove the photoconductor.
 - Clean the photoconductor unit contacts and guide rail contacts.
 - Check the bottom connector contact on the photoconductor guide rail for continuity to ground.

Is there continuity?

No: Repair or replace the grounding circuit wiring, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 17** Reinstall the photoconductor unit.
- Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Replace the photoconductor unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

TAG 801: Prints Light or Light With Carrier Particles

Error Code: 801

Possible Defects: Photoconductor unit
Connectors or wiring
Main drive gear assembly
Transfer charger unit
Power control #2 board
Print-head assembly
High voltage unit
Toner supply motor
PCL board
Upper paper guide assembly
Developer unit

If the problem still exists after completing this TAG, go to [TAG 800: Prints Blank or With Dark Horizontal Bands](#).

1

Run test prints.

- Examine the letters A, V, and W for jaggedness on the diagonal lines.

Are they jagged?

No: Continue.

Yes: Refer to [Chapter 4, “Print Quality Samples”](#). Review the printhead problem print samples, identify one similar to the test prints, and turn to the associated TAG.

2

Turn the printer off and unplug the power cord.

- Verify that J/P12, J/P13, J/P18, and J/P41 are connected properly.
- Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
- Clean the printhead lens and toner patch sensor located on the developer unit.
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

3

Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#). Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

4

Have the photoconductor unit, main charger, developer unit, and toner cartridge been replaced recently?

No: Continue.

Yes: Go to #7 in this TAG.

-
- 5** Replace the photoconductor unit and main charger.
- Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original photoconductor unit and main charger and continue.
- Yes:** Run at least 200 test prints to detone the engine, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 6** Replace the developer unit and toner cartridge.
- Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original developer unit and continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 7** Produce a developed image on the photoconductor.
- Is the developed image on the photoconductor correct?**
- No:** Go to #11 in this TAG.
- Yes:** Continue.
-
- 8** Remove and clean the transfer charger unit.
- Clean the transfer charger unit contacts in the upper paper guide.
 - Inspect the transfer charger contacts for proper alignment.
 - Reinstall the transfer charger unit.
 - Power-on-reset the printer.
 - Run test prints.
- Has the problem been resolved?**
- No:** Continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 9** Turn the printer off and unplug the power cord.
- Remove the transfer charger unit.
 - Check the lower transfer charger unit contact, with the upper paper guide assembly in its fully upright position, for continuity to ground.
- Is there continuity?**
- No:** Repair or replace the upper paper guide assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.

10 Turn the printer off and unplug the power cord.

- Replace the transfer charger unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Replace the upper paper guide assembly. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: The transfer charger unit was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

11 Open the front cover and install an interlock by-pass tool.

- Remove the photoconductor unit.
- Remove the developer unit.
- Run diagnostic test 010.
- Watch the toner motor coupling in the developer unit cavity.

Does the coupling turn?

No: Go to #20 in this TAG.

Yes: Continue.

12 Inspect the toner drive coupling on the developer unit for damage.

Is the coupling damaged?

No: Continue.

Yes: Replace the developer unit, then turn to [TAG 002: Check & Problem Resolution](#).

13 Rotate both the drive couplings on the developer unit clockwise.

Do both drive couplings rotate freely?

No: Replace the developer unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

14 Reinstall the photoconductor unit.

- Run diagnostic test 009.
- Watch the developer drive coupling in the developer cavity.

Does the coupling turn?

No: Repair or replace the main drive gear assembly, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

15 Turn the printer off and unplug the power cord.

- Disconnect J/P41, J/P24, and J/P23.
- Check the following for continuity:
 - P41-30 to J24-4,
 - P41-38 to J23-2,
 - P41-43 to J25-5,
 - P41-44 to J25-2,
 - P41-47 to J25-3,
 - P41-48 to J25-6,
 - P41-49 to J25-4, and
 - P41-50 to J25-1.

Is there continuity on all?

No: Repair or replace the connectors or wiring that do not have continuity, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

16 Reconnect J/P23, J/P41, and J/P24.

- Reinstall the developer unit.
- Power-on-reset the printer.
- Check TP4-30 for +24 Vdc for one minute.

Is the voltage +24 Vdc for the first minute after power-on-reset?

No: Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

17 Run test prints.

- Check TP4-30 for 0 Vdc while running the prints.

Does the voltage change to 0 Vdc?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

18 Is a meter with a high voltage probe available?

No: Go to #24 in this TAG.

Yes: Continue.

19 Power-on-reset the printer.

- Run test prints.
- Using a high voltage probe, check J/P25-7 for the proper voltage, as outlined in [Chapter 9, "General Printer Maintenance"](#).

Is the voltage correct?

No: Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Go to #25 in this TAG.

-
- 20** Run diagnostic test 010. Use extreme caution:
- Check J/P13-5 to J/P13-2 for 100 Vac while the test is running.
- Is the voltage 100 Vac?**
- No:** Go to #22 in this TAG.
- Yes:** Continue.
-
- 21** Run diagnostic test 010. Use extreme caution:
- Check J/P18-1 to J/P18-2 for 100 Vac while the test is running.
- Is the voltage 100 Vac?**
- No:** Repair or replace the connectors or wiring from P18-1 to P13-5, P18-2 to P13-2, or both.
- Yes:** Replace the toner supply motor, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 22** Run diagnostic test 010.
- Check TP3-31 for 0 Vdc while the test is running.
- Is the voltage 0 Vdc?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 23** Turn the printer off and unplug the power cord.
- Check P40-31 to P12-5 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P40-31 to P12-5.
- Yes:** Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 24** Turn the printer off and unplug the power cord.
- Replace the high voltage unit.
 - Power-on-reset the printer.
 - Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original high voltage unit and continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 25** Turn the printer off and unplug the power cord.
- Replace the main charger terminal assembly.
 - Power-on-reset the printer.
 - Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original main charger terminal assembly and continue.
- Yes:** Turn to [TAG 800: Prints Blank or With Dark Horizontal Bands](#).
-

26 Turn the printer off and unplug the power cord.

- Replace the printhead assembly unit.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original printhead assembly unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

27 Turn the printer off and unplug the power cord.

- Replace the IGS board.
- Power-on-reset the printer.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original IGS board and go to [TAG 800: Prints Blank or With Dark Horizontal Bands](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 802: Prints With Voids or White Spots

Error Code: 802

Possible Causes: Wrong weight or type of paper loaded

Possible Defects: Photoconductor unit
Developer unit

- 1** Perform the every-call cleaning procedure.
- Confirm that the paper in the cassettes meets paper specifications, outlined in the *Guide to Operations* manual.
 - Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** **Have the photoconductor unit, developer unit, and fuser unit been replaced recently?**

No: Continue.

Yes: Refer to the [Chapter 4, “Print Quality Samples”](#). Compare the test prints with the print samples and identify a sample having the same print flaw as the test prints; turn to the TAG listed under the sample.

- 4** Replace the photoconductor unit and main charger.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger, and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

- 5** Replace the developer unit and toner cartridge.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit. Refer to the [Chapter 4, “Print Quality Samples”](#). Compare the test prints with the print samples, and identify a sample having the same print flaw as the test prints; turn to the TAG listed under the sample.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 803: Prints With Light or White Vertical Streaks

Error Code: 803

Possible Defects: Transfer charger unit
Printhead assembly unit
Photoconductor unit
Developer unit

- 1** Turn off the printer and unplug the power cord.
- Verify that J/P13, J/P30, and J/P31 are connected properly.
 - Make sure the customer's paper supply is not at fault.
 - Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors or contamination were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** **Have the photoconductor unit, main charger, and developer unit been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

- 4** Replace the photoconductor unit and main charger.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger, and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

- 5** Replace the developer unit and toner cartridge.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Turn on the printer.

- Produce a developed image on the photoconductor.

Are there vertical streaks on the photoconductor belt image?

No: Replace the transfer charger unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the printhead assembly unit, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 804: Prints With Light Horizontal Bands

Error Code: 804

Possible Causes: Loose printhead connectors

Possible Defects: Transfer charger unit
Photoconductor unit
Main charger

- 1** Turn the printer off and unplug the power cord.
- Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Verify that J/P30 and J/P31 are connected properly.
 - Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** **Have the photoconductor unit and main charger have been replaced recently?**

No: Continue.

Yes: Go to #5 in this TAG.

No: Replace the photoconductor unit and main charger.

Yes: Turn on the printer.

- 4** Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger, then continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

- 5** Replace the transfer charger unit.

Has the problem been resolved?

No: Replace the photoconductor unit. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, refer to the [Chapter 4, “Print Quality Samples”](#). Compare the test prints with the print samples, and identify a sample having the same print flaw as the test prints; turn to the TAG listed under the sample.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 805: Black Prints

Error Code: 805

Possible Causes: Contaminated toner/carrier mix

Possible Defects: Main charger
Printhead assembly
Connectors or wiring
PCL board
IGS board
High voltage unit
Main charger lead
Photoconductor unit
Developer unit
Main charger terminal assembly

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P23, J/P24, J/P41, and the main charger high voltage lead are connected properly.
 - Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Clean the contacts on the main charger.
 - Open the printer’s top cover and install an interlock by-pass tool.
 - Run diagnostic test 009.

Is the photoconductor belt covered with toner?

No: Loose connectors or contamination were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** **Has the photoconductor unit, main charger, developer unit, and cleaner unit been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

-
- 4** Replace the photoconductor unit and main charger.

- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger, then continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

5

Replace the developer unit, toner cartridge, and cleaner unit.

- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and cleaner unit, then continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#). If the problem recurs, the toner/carrier mix may be old or contaminated.

6

Turn the printer off and unplug the power cord.

- Disconnect J/P41, J/P23, and J/P24.
- Check P41-33 to P23-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-33 to P23-7, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

7

Check P41-30 to P24-4 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-30 to P24-4.

Yes: Continue.

8

Replace the main charger terminal assembly.

- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

9

Replace the high voltage unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original high voltage unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

10

Replace the printhead assembly.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original printhead assembly and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

11

Replace the IGS board.

- Run test prints.

Has the problem been resolved?

No: Replace the main charger lead wiring, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 806: Prints with Dark Spots or Scratches

Error Code: 806

Possible Causes: Paper path contamination
Paper supply defects
Toner

Possible Defects: Photoconductor unit
Main charger
Fuser unit
Developer unit
Cleaner unit

- 1** Turn the printer off and unplug the power cord.
- Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** **Have the photoconductor unit, main charger, fuser unit, cleaner unit, and developer unit with new toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #8 in this TAG.

- 4** Replace the photoconductor unit and main charger.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

- 5** Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

7

Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#). If this problem recurs, the toner/carrier mix may be old or contaminated.

8

Inspect the paper being used for scratches or dark spots.

Does the paper have any problems?

No: Continue.

Yes: Replace the paper. Turn to [TAG 002: Check & Problem Resolution](#).

9

Inspect the following for damage or binding:

- Main drive motor gear
- Main drive gear assembly
- Developer coupling on the developer unit and the printer

Are these mechanisms in good working order?

No: Replace the defective parts, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Verify that the photoconductor, main charger, developer, and fuser units are new. If these items are new, defective or contaminated toner may be the cause of the problem. Replace the developer and cleaner units with units from the printer's manufacturer, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 807: Misregistered/Skewed Prints (Simplex)

If this problem occurs in the duplex printing mode only, go to [TAG 901: Misregistration/Skewed Prints \(Duplex\)](#).

Error Code: 807

Possible Causes: Paper incorrectly loaded
Wrong weight or type of paper loaded

Possible Defects: Upper cassette
Lower cassette
Upper paper guide assembly
Lower paper guide assembly
Paper timing guide assembly
Paper timing roller assembly
Upper pick-up roller assembly
Upper feed roller assembly
Upper pinch rollers
Lower feed roller assembly
Lower pick-up roller assembly
Lower pinch rollers
Paper feed drive belt
Paper feed idler assembly
Main drive gear assembly
PCL board

If the test pattern has a 20 line indicator at the top of the page, registration is correct when the line of the indicator is at the leading edge of the print (+ or -2).

If the problem varies from print to print, a mechanical binding malfunction may be at fault.

1

Inspect both paper cassettes for damage.

- Make sure the paper in the cassettes is loaded properly.
- Make sure the side and rear paper guides are positioned properly.
- Inspect both paper paths for contamination and remove any obstructions.
- Confirm that the paper in the cassettes meets paper specifications, outlined in the Guide to Operations at the back of this manual.
- Power-on-reset the printer.
- Remove and insert the cassette causing the problem. Confirm that the code, which displays on the operator's panel, corresponds to the paper size in the cassette. (The codes and the paper sizes to which they correspond are listed in the *Guide to Operations*. Refer to [TAG 702: Paper Size Detection Malfunction](#).)
- Run test prints from the upper cassette.

Is the problem with the upper cassette?

No: Go to #5 in this TAG.

Yes: Continue.

-
- 2** Remove the upper cassette.
- Power-on-reset the printer.
 - Run test prints from the lower cassette.
- Is the problem also with the lower cassette?**

No: Go to #4 in this TAG.

Yes: Continue.

- 3** Turn the printer off and unplug the power cord.
- Inspect the following for damage or contamination:
 - Paper timing roller assembly
 - Upper paper guide assembly
 - Lower paper guide assembly
 - Paper timing guide assembly
 - Paper feed drive belt
 - Paper feed idler assembly
 - Main drive gear assembly

Are these parts clean and in good working order?

No: Repair or replace the parts as needed, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Go to #7 in this TAG.

- 4** Inspect the following for damage and contamination:
- Upper pick-up roller assembly
 - Upper feed roller assembly
 - Upper pinch rollers
 - Upper cassette

Are these parts clean and in good working order?

No: Repair or replace the parts as needed, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: You have not isolated the problem. Return to the beginning of this TAG.

- 5** Remove the upper cassette.
- Power-on-reset the printer.
 - Run test prints from the lower cassette.
- Is the problem with the lower cassette?**

No: Incorrectly loaded paper was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

6 Inspect the following for damage or contamination:

- Lower pick-up roller assembly
- Lower feed roller assembly
- Lower pinch rollers
- Lower cassette.

Are these parts clean and in good working order?

No: Repair or replace the parts as needed, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: You have not isolated the problem. Return to the beginning of this TAG.

7 **Is misregistration the symptom of the problem?**

No: Skew problems can only result from mechanical causes. Return to the beginning of this TAG.

Yes: Continue.

8 Run test prints.

Is the amount of misregistration within + or - 2 lines of the 20-line indicator from the leading edge of the test print?

No: Continue.

Yes: The registration is within specification. Turn to [TAG 002: Check & Problem Resolution](#).

9 Open the printer's rear cover and insert an interlock by-pass tool.

- Set the four registration switches on the PCL board to off.
- Run test prints.
- Based on the test prints, increase the registration by changing the switches. Refer to the following chart.

Did resetting the switches resolve the problem?

No: Replace the paper timing roller assembly, then turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the upper paper guide assembly or the paper timing guide, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

Table 3-5. PCL Board Switch Settings

Setting Number	DIP Switches			
	1	2	3	4
0	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	ON
2	OFF	OFF	ON	OFF
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	OFF
5	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF

Table 3-5. PCL Board Switch Settings

Setting Number	DIP Switches			
	1	2	3	4
7	OFF	ON	ON	ON
8	ON	OFF	OFF	OFF
9	ON	OFF	OFF	ON
10	ON	OFF	ON	OFF
11	ON	OFF	ON	ON
12	ON	ON	OFF	OFF
13	ON	ON	OFF	ON
14	ON	ON	ON	OFF
15	ON	ON	ON	ON

TAG 808: Prints Overtoned/Dark Vertical Streaks

Error Code: 808
Possible Causes: Clogged cleaner
Contaminated toner/carrier mix
Possible Defects: Cleaner unit
Photoconductor unit
Main charger
High voltage unit
Power control #2 board
PCL board
Connectors or wiring
Developer unit

Overtoned print and dark print problems are very similar. If this TAG does not resolve the problem, go to [TAG 811: Background/Residual Images/Dark Prints](#).

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P23, J/P12, J/P25, and J/P41 are connected properly.
 - Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Power-on-reset the printer.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#)

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** **Have the photoconductor unit, main charger, cleaner unit, and developer unit with toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #7 in this TAG.

-
- 4** Replace the photoconductor unit and main charger.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger, then continue.

Yes: Run at least 200 test prints to detone the printer’s engine, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 5** Replace the cleaner unit.
- Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original cleaner unit and continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 6** Replace the developer unit with toner cartridge.
- Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original developer unit and continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#). If the problem recurs, the toner/carrier mix may be old or contaminated.
-
- 7** Turn the printer off.
- Open the front cover and install an interlock by-pass tool.
 - Remove the developer unit.
 - Power-on-reset the printer.
 - Watch the toner motor coupling at the rear of the developer cavity.
- Does the coupling turn continuously?**
- No:** Go to #10 in this TAG.
- Yes:** Continue.
-
- 8** Check TP3-31 for 0 Vdc.
- Is the voltage 0 Vdc?**
- No:** Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 9** Turn off the printer and unplug the power cord.
- Disconnect J/P12 and J/P40.
 - Check P40-31 to P12-5 for continuity.
- Is there continuity?**
- No:** Repair or replace the connectors or wiring from P40-31 to P12-5, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the power control #2 board. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this doesn't resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 10** Reinstall the developer unit.
- Run test prints.
 - Check TP3-31 for a voltage change from +12 Vdc to 0Vdc while running test prints.

Does the voltage change from +12 Vdc to 0Vdc every other print cycle?

No: Go to #14 in this TAG.

Yes: Continue.

- 11** Turn the printer off and unplug the power cord.
- Disconnect J/P41.
 - Remove the developer unit.
 - Check for continuity:
P4 P41-44 to P25-2,
P41-47 to P25-3, and
P41-50 to P25-1.

Is there continuity at each?

No: Repair or replace the connectors or wiring from:

P41-44 to P25-2,

P41-47 to P25-3, or

P41-50 to P25-1;

then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 12** Verify that the connector is securely plugged into the toner patch sensor circuit board, which is mounted on the developer unit.

Is it connected properly?

No: Reconnect the connector, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 13** Clean the printhead lens and toner patch sensor.
- Reinstall the developer unit.
 - Reconnect J/P41.
 - Run test prints while checking TP3-31 for a voltage change.

Does the voltage still change from +12 Vdc to 0 Vdc every other print cycle?

No: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the developer unit and cleaner unit, then turn to [TAG 002: Check & Problem Resolution](#).

- 14** Turn the printer off and unplug the power cord.
- Disconnect J/P41 and J/P24.
 - Check P41-30 for continuity to ground.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P41-30 to P24-2, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 15** Reconnect J/P24.
- Disconnect J/P23.
 - Check P41-38 to P23-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-38 to P23-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 16** Remove the developer unit.
- Check P85-8 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P85-8 to J25-7, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 17** **Is a meter with a high voltage probe available?**

No: Go to #19 in this TAG.

Yes: Continue.

- 18** Reinstall the developer unit.
- Reconnect J/P85.
 - Run test prints.
 - Using a high voltage probe, check J/P25-7 for the proper voltage, as outlined in [Chapter 9, "General Printer Maintenance"](#).

Is the voltage correct?

No: Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Go to #20 in this TAG.

- 19** Reconnect J/P85.
- Reinstall the developer unit.
 - Replace the high voltage unit.
 - Run test prints.

Has the problem been resolved?

No: Reinstall the original high voltage unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

Repair or replace the PCL board.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original PCL board. Confirm that the photoconductor, main charger, developer unit, and fuser units are new. If these items are new, the toner/carrier mix may be old or contaminated. Replace the developer and cleaner units with units from the printer's manufacturer. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). Otherwise, turn to [TAG 811: Background/Residual Images/Dark Prints](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 809: Blurred or Smeared Vertical Streaks on Prints

Error Code: 809

Possible Defects: Photoconductor unit
Main charger
Cleaner unit
Fuser unit
Vacuum transport unit
Fuser unit drive gear
Fuser drive idler and spring
Fuser drive belt
Main drive assembly
Printhead assembly
Power control #2 board

1

Turn the printer off and unplug the power cord.

- Verify that J/P23, J/P41, and J/P13 are connected properly.
- Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
- Clean the printhead lens.
- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2

Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

3

Have the photoconductor, main charger, cleaner, or fuser units been replaced recently?

No: Continue.

Yes: Go to #7 in this TAG.

4

Replace the photoconductor unit and main charger.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor and main charger and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

5

Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

7

Check the following for damage:

- Vacuum transport unit
- Vacuum transport assembly ozone filter
- Fuser unit drive gear on the fuser unit and fuser unit cavity
- Fuser drive belt
- Main drive assembly
- Cleaner unit drive belt
- Cleaner drive idler assembly
- Cleaner drive assembly

Are they in good working order?

No: Repair or replace the parts as needed, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

8

Open the printer's top cover and install an interlock by-pass tool.

- Turn the printer on.
- Wait until the motor turns on, then proceed.
- Verify the vacuum transport fan is running by placing a sheet of paper over the holes in the transport unit.

Does the vacuum fan hold the paper?

No: Go to #10 in this TAG.

Yes: Continue.

9

Inspect the vacuum transport belts and gear for damage or binding.

Is the vacuum transport unit in good working order?

No: Repair or replace the vacuum transport unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Go to #12 in this TAG.

-
- 10** Run test prints. Use extreme caution:
- Check J/P22-1 to J/P22-2 for 100 Vac.
- Is the voltage 100 vac?**
- No:** Continue.
- Yes:** Replace the vacuum transport unit, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 11** Run test prints. Use extreme caution:
- Check J/P13-6 to J/P13-3 for 100 Vac.
- Is the voltage 100 vac?**
- No:** Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Repair or replace the connectors or wiring from J22-1 to P13-6 or J22-2 to P13-3, then turn to [TAG 002: Check & Problem Resolution](#).
-

- 12** Inspect the fuser drive assembly and the fuser drive belt for damage or a slipping belt.
- Are they in good working order?**
- No:** Replace the parts that are defective, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Replace the printhead assembly, then turn to [TAG 002: Check & Problem Resolution](#).
-

TAG 810: Uneven Density or Dark Areas on Prints

Error Code: 810

Possible Defects: Photoconductor unit
Main charger
Developer unit
Cleaner unit

1 Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).

- Turn the printer on.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

2 Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

3 **Have the photoconductor unit, main charger, cleaner unit and developer unit with new toner cartridge been replaced recently?**

No: Continue.

Yes: Go to [TAG 811: Background/Residual Images/Dark Prints](#).

4 Replace the photoconductor unit and main charger.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

5 Replace the cleaner unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and toner cartridge, then turn to [TAG 811: Background/Residual Images/Dark Prints](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#). If the problem recurs, the toner/carrier mix may be old or contaminated.

TAG 811: Background/Residual Images/Dark Prints

Error Code: 811
Possible Causes: Contaminated toner/carrier mix
Possible Defects: Photoconductor unit
Main charger
Cleaner unit
Developer unit
Erase lamp assembly
High voltage unit
Power control #2 board
Connectors or wiring
PCL board
Main charger terminal assembly
Cleaner terminal assembly

-
- 1** Turn the printer off and unplug the power cord.
- Verify J/P23, J/P24, J/P85, and the main charger high voltage lead are connected properly.
 - Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Clean the contacts on the main charger.
 - Clean the printhead lens and toner patch sensor located on the developer unit.
 - Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or a loose connector was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** **Have the photoconductor unit, main charger, cleaner unit and developer unit with new toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #5 in this TAG.

-
- 4** Replace the photoconductor unit and main charger.
- Run 200+ test prints, then evaluate the test print background.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

-
- 5** Replace the developer unit and cleaner unit.
- Run test prints.
- Has the problem been resolved?**
- No:** Reinstall the original developer unit and cleaner unit and continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 6** Remove the photoconductor unit from the printer.
- Run diagnostic test 013.
 - Watch the erase lamp while the test is running.
- Are all the erase lamps on?**
- No:** Replace the erase lamp assembly, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 7** Turn the printer off.
- Open the front cover and install an interlock by-pass tool.
 - Remove the developer unit.
 - Power-on-reset the printer.
 - Watch the toner motor coupling in the developer cavity.
- Does the coupling turn continuously before error code 036 is displayed?**
- No:** Continue.
- Yes:** Go to #21 in this TAG.
-
- 8** Reinstall the developer unit.
- Run test prints.
 - Check TP3-31 for voltage change from +12 Vdc to 0 Vdc while running test prints.
- Does the voltage change from +12 Vdc to 0 Vdc every other print cycle?**
- No:** Go to #11 in this TAG.
- Yes:** Continue.
-
- 9** Turn the printer off and unplug the power cord.
- Disconnect J/P41.
 - Remove the developer unit.
 - Check for continuity: P41-44 to J25-2, P41-47 to J25-3, and P41-50 to J25-1.
- Is there continuity on each?**
- No:** Repair or replace the connectors or wiring: P41-44 to J24-2, P41-47 to J25-3, or P41-50 to J25-1; then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

10 Verify that the toner patch sensor board connector, mounted on the developer unit, is connected properly.

Is it connected properly?

No: A loose connection was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

11 Turn the printer off and unplug the power cord.

- Disconnect J/P41 and J/P24.
- Check P41-30 to P24-2 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-30 to P24-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

12 Reconnect J/P24.

- Disconnect J/P23.
- Check P41-33 to P23-7 for continuity.

Is there continuity?

No: Continue.

Yes: Repair or replace the connectors or wiring from P41-33 to P23-7, then turn to [TAG 002: Check & Problem Resolution](#).

13 Reconnect J/P23.

- Disconnect J/P85 from the high voltage unit.
- Check P85-8 to J25-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P85-8 to J25-7, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

14 Reinstall the developer unit.

- Reconnect J/P85.
- Disconnect J/P41 and J/P24.
- Check P41-40 to P24-3 for continuity.

Is there continuity?

No: Repair or replace the connector or wiring from P41-40 to P24-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 15** Reconnect J/P41 and J/P24.
- Turn the printer on.
 - Run test prints.
 - Check TP4-40 for 0.5 Vdc while running the prints.
- Is the voltage 0.5 Vdc?**
- No:** Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 16** **Is a meter with a high voltage probe available?**
- No:** Go to #19 in this TAG.
- Yes:** Continue.
-
- 17** Using a high voltage probe, check J/P25-7 for the proper voltage, as described in [Chapter 9, “General Printer Maintenance”](#).
- Is the voltage correct?**
- No:** Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-
- 18** Check the main charger, transfer charger, grid, and cleaning bias described in [Chapter 9, “General Printer Maintenance”](#).
- Are any of the values out of specification?**
- No:** Go to #20 in this TAG.
- Yes:** Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).
-
- 19** Replace the high voltage unit.
- Has the problem been resolved?**
- No:** Reinstall the original high voltage unit and continue.
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 20** Replace the PCL board.
- Has the problem been resolved?**
- No:** Reinstall original PCL board. Go back to #3 in this TAG. If this does not resolve the problem, the IGS board, cleaner terminal assembly, or main charger terminal assembly may be at fault. Determine which of these is at fault, correct the problem, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Turn to [TAG 002: Check & Problem Resolution](#).
-
- 21** Check J/P40-31 for 0 Vdc.
- Is the voltage 0 Vdc?**
- No:** Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

22 Turn the printer off and unplug the power cord.

- Disconnect J/P40.
- Check P40-31 for continuity to ground.

Is there continuity?

No: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

23 Disconnect J/P12.

- Check P40-31 and P12-5 for continuity to ground.

Is there continuity?

No: Replace the power control #2 board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Repair or replace the connectors or wiring from P40-31 to P12-5, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 812: Uneven or No Fusing on Prints

Error Code: 812

Possible Causes: Wrong weight or type of paper loaded

Possible Defects: Fuser unit
Connectors or wiring
AC power supply unit
PCL board

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P44, J/P4, J/P10, J/P11, J/P12, J/P40, J/P83, J/P91, and J/P8 are connected properly.
 - Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination or loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#)

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** **Have the fuser unit and developer unit with new toner cartridge been replaced recently?**

No: Continue.

Yes: Go to #6 in this TAG.

-
- 4** Replace the fuser unit.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original fuser unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

-
- 5** Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Power-on-reset the printer.

- Watch through the output tray opening to see if the fuser lamp comes on.

Does the lamp light within 1.5 minutes?

No: Go to [TAG 070: Fuser Unit Malfunction](#).

Yes: Continue.

7

Run test prints.

Does the print seem to be excessively dark or do the characters feel raised on the paper?

No: Continue.

Yes: Go to [TAG 808: Prints Overtone/Dark Vertical Streaks](#).

8

Confirm that the paper in the cassettes meets paper specifications, outlined in the *Guide to Operations* manual.

Is the paper within specification?

No: Do not use this paper. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9

Turn the printer off and unplug the power cord.

- Remove the fuser unit.
- Disconnect J/P41.
- Check P41-22 to P5-6 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-22 to P83-1, or J83-1 to P5-6, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

10

Check P41-21 to P5-7 for continuity.

Is there continuity?

No: Repair or replace the connectors or wiring from P41-21 to P83-2, or J83-2 to P5-7, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

11

Reinstall the fuser unit.

- Check P41-21 to P41-22 for resistance.

Is the resistance between 1 K Ω and 400 K Ω ?

No: Replace the fuser unit. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 813: Residual Images on Prints

Error Code: 813
Possible Defects: Cleaner unit drive belt
Cleaner unit
High voltage unit
Photoconductor unit
Erase lamp assembly
Developer unit

- 1** Turn the printer off and unplug the power cord.
- Perform the every-call cleaning procedure, described in [Chapter 9, “General Printer Maintenance”](#).
 - Turn the printer on.
 - Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Contamination was at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 2** Open the printer’s back cover.
- Remove the paper feed drive cover.
 - Check the cleaner unit drive belt.

Is the belt attached?

No: Repair or replace the cleaner unit drive belt, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 3** Check the voltages, as outlined in [Chapter 9, “General Printer Maintenance”](#).

Are the voltages correct?

No: Replace the high voltage power supply unit, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 4** **Have the cleaner unit, developer unit with new toner cartridge, and photoconductor unit been replaced recently?**

No: Continue.

Yes: Go to #8 in this TAG.

- 5** Replace the cleaner unit.
- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

6

Replace the developer unit and toner cartridge.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original developer unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

7

Replace the photoconductor unit and main charger.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original photoconductor unit and main charger, then continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#). If the problem recurs, the toner may be old or contaminated.

8

Turn the printer off and unplug the power cord.

- Disconnect J/P40 and J/P24.
- Check P40-40 to P24-3 for continuity.

Is there continuity?

No: Repair or replace the connector or wiring from P40-40 to P24-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

9

Is a meter with a high voltage probe available?

No: Go to #11 in this TAG.

Yes: Continue.

10

Check the main charger, transfer charger, grid, and cleaning bias described in [Chapter 9, “General Printer Maintenance”](#).

Are any of the values out of specification?

No: Go to #12 in this TAG.

Yes: Replace the high voltage unit, then turn to [TAG 002: Check & Problem Resolution](#).

11

Replace the high voltage unit.

Has the problem been resolved?

No: Reinstall the original high voltage unit and continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

12

Repair or replace the cleaner terminal assembly.

- Run test prints.

Has the problem been resolved?

No: Reinstall the original cleaner terminal assembly, then go back to #5 in this TAG.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 815: Prints Resulting From Printhead Malfunctions

Error Code: 815

Possible Causes: Additional lines or missing lines on page.

Possible Defects: Printhead assembly
Connectors or wiring
IGS board

-
- 1** Turn off the printer and unplug the power cord.
- Replace wire harness 46.

Has the problem been resolved?

No: Continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

-
- 2** Turn off the printer and unplug the power cord.
- Replace the printhead assembly.

Has the problem been resolved?

No: Replace the IGS board, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

TAG 900: Top Cover Interlock Malfunction, Duplex

Error Code: 900

Possible Defects: Cover open sensor
PCL board
Duplex control board #1
Connectors or wiring

Complete [TAG 600: AC Power Malfunction](#) before starting this TAG.

-
- 1** Turn the printer off and unplug the power cord.
- Verify that J/P306, J/P307, J/P309, and J/P318 are connected properly.
 - Confirm that the top and front covers are closing completely.
 - Power-on-reset the printer.

Is error code 090 displayed?

No: Loose connectors or obstructions were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 2** Open the printer's top cover and insert the interlock by-pass tool.
- Turn on the printer.
 - Check J/P309-3 on duplex control board #1 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** Check J/P309-1 on duplex control board #1 for +12 Vdc.

Is the voltage +12 Vdc?

No: Continue.

Yes: Go to #5 in this TAG.

-
- 4** Turn the printer off and unplug the power cord.
- Disconnect J/P318 and J/P309.
 - Check the following for continuity:
P309-1 to P318-2,
P309-3 to P318-1, and
P309-5 to P318-3.

Is there continuity?

No: Repair or replace the wiring or connectors from:

P309-1 to P318-2,
P309-3 to P318-1, or
P309-5 to P318-3;
then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the cover open sensor, then turn to [TAG 002: Check & Problem Resolution](#).

5

Turn on the printer.

- Check J/P36-1 on the PCL board for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace the duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 901: Misregistration/Skewed Prints (Duplex)

Error Code: 901

Possible Causes: Wrong weight or type of paper loaded

Possible Defects: Duplex holding tray sensors
Duplex holding tray motor
Duplex drive/clutch
Pinch rollers A and B
Route separator
Duplex control board #2
Connectors or wiring
PCL board

Registration is correct when the top (+ or -2) of the 20-line indicator, found on the top of a test print, is at the leading edge of the print.

If the problem varies from print to print, suspect a mechanical binding problem. If problems exist in the simplex mode, go to [TAG 807: Misregistered/Skewed Prints \(Simplex\)](#).

1

Verify that the upper and lower paper cassettes are not damaged.

- Confirm that the paper in the cassettes meets paper specifications, outlined in the *Guide to Operations* manual.
- Make sure the paper in both paper cassettes is loaded properly.
- Make sure the side and rear paper guides in the paper cassettes are positioned properly.
- Check both paper paths for obstructions or contamination.
- Run test prints.

Has the problem been resolved?

No: Continue.

Yes: Turn to [TAG 002: Check & Problem Resolution](#).

2

Turn the printer off and unplug the power cord.

- Inspect the following for damage or contamination:
 - Duplex drive/clutch assembly
 - Timing belts
 - Upper paper guide assembly
 - Pinch roller springs
 - Route separator and springs

Are these parts clean and in good working order?

No: Repair or replace any damaged parts as needed, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

-
- 3** Verify that J/P305, J/P310, J/P311, J/P312, J/P320, J/P321, and J/P322 are connected properly to duplex control board #2.
- Verify that J/P306, J/P307, J/P308, J/P309, and J/P324 are connected properly to duplex control board #1.
 - Verify that J/P315 and J/P316 are connected properly to the “A” and “C” roller clutches.
 - Run test prints in duplex.

Did the test indicate an error code?

No: Registration or skew problems can only result from mechanical causes. Return to the beginning of this TAG.

Yes: Continue.

- 4** **Did the side guides in the duplex tray move in and out while the test was running?**

No: Go to #8 in this TAG.

Yes: Continue.

- 5** Check J/P312-1 on duplex control board #2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace duplex control board #2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 6** Manually move the side guides in the duplex tray to the inside positions.

- Check J/P312-2 on duplex control board #2 for 0 Vdc.

Is the voltage 0 Vdc?

No: Continue.

Yes: Replace duplex control board #2, then turn to [TAG 002: Check & Problem Resolution](#).

- 7** Turn the printer off and unplug the power cord.

- Disconnect J/P320 and J/P312.
- Check the following for continuity:
 - P312-1 to P320-1,
 - P312-2 to P320-2, and
 - P312-3 to P320-3.

Is there continuity?

No: Repair or replace the wiring or connectors from:

P312-1 to P320-1,
P312-2 to P320-2, or
P312-3 to P320-3;

then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the side sensor. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace duplex control board #2, then turn to [TAG 002: Check & Problem Resolution](#).

8

Run diagnostic test 017.

Did diagnostic test 017 indicate a duplex tray paper sensor problem?

No: Continue.

Yes: Go to #13 in this TAG.

9

Turn the printer off.

- Disconnect J/P312 and J/P321.
- Check P312-7 to J321-1 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-7 to J321-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

10

Check P312-8 to J321-2 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-8 to J321-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

11

Check P312-9 to J321-3 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-9 to J321-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

12

Check P312-10 to J321-4 for continuity.

Is there continuity?

No: Repair or replace the wiring or connectors from P312-10 to J321-4, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace duplex control board #2. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this does not resolve the problem, replace the registration motor, then turn to [TAG 002: Check & Problem Resolution](#).

13

Check J/P312-4 for +12 Vdc.

Is the voltage +12 Vdc?

No: Replace duplex control board #2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

14 Manually activate the duplex tray paper sensor.

- Check J/P312-5 for 0 Vdc.

Is the voltage 0 Vdc?

No: Replace the duplex tray paper sensor. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this doesn't resolve the problem, repair or replace the wiring or connectors from:
P312-4 to J322-1,
P312-5 to J322-2, or
P312-6 to J322-3;
then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

15 Manually activate the duplex tray paper sensor.

- Check J/P36-6 on the PCL board for 0 Vdc.

Is the voltage 0 Vdc?

No: Replace duplex control board #2. If this resolves the problem, turn to [TAG 002: Check & Problem Resolution](#). If this doesn't resolve the problem, repair or replace the wiring or connectors from P311-7 to J/P305-11 to P36-4, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the PCL board, then turn to [TAG 002: Check & Problem Resolution](#).

TAG 902: Paper Jam in Duplex Area

Error Code: 027, 060, 061, 062

Possible Causes: Paper incorrectly loaded
Paper path not clear

Possible Defects: Duplex drive/clutch
“A” roller clutch
Duplex input solenoid
“C” roller clutch
Duplex feed motor
Duplex control board #1
Connectors or wiring

- 1** Turn the printer off and unplug the power cord.
- Verify that J/P306, J/P307, J/P308, J/P309, J/P313, J/P314, J/P315, J/P316, J/P317, and J/P319 are connected properly.
 - Check the following components for damage:
 - Duplex drive/clutch
 - Timing belts
 - Route separator
 - Power-on-reset the printer.

Has the problem been resolved?

No: Continue.

Yes: Loose connectors were at fault. Turn to [TAG 002: Check & Problem Resolution](#).

- 2** Turn on the printer.
- Run diagnostic test 017.
- Is the duplex paper path sensor in good working order?**
- No:** Continue.
- Yes:** Go to #7 in this TAG.
-

- 3** Turn the printer off.
- Disconnect J/P309.
 - Turn on the printer.
 - Check J309-4 on duplex control board #1 for +12 Vdc.
- Is the voltage +12 Vdc?**
- No:** Replace duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

- 4** Check J/P309-2 on duplex control board #1 for +12 Vdc.
- Is the voltage +12 Vdc?**
- No:** Replace duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).
- Yes:** Continue.
-

-
- 5** Turn the printer off.
- Reconnect J/P309.
 - Disconnect J/P319.
 - Turn the printer on.
 - Check J319-1 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the wiring or connectors from P309-4 to J319-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 6** Check J319-2 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the wiring or connectors from P309-2 to J319-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the paper pass sensor, then turn to [TAG 002: Check & Problem Resolution](#).

- 7** Turn the printer on.
- Run diagnostic test 018.

Is the “A” roller clutch in good working order?

No: Continue.

Yes: Go to #10 in this TAG.

- 8** Turn the printer off.
- Disconnect J/P308.
 - Turn the printer on.
 - Check J308-3 on the duplex control board #1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 9** Turn the printer off.
- Reconnect J/P308.
 - Disconnect J/P316.
 - Turn the printer on.
 - Check P316-1 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the wiring or connectors from P308-3 to J316-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the “A” roller clutch, then turn to [TAG 002: Check & Problem Resolution](#).

-
- 10** Turn the printer on.
- Run diagnostic test 018.
- Is the input solenoid in good working order?**

No: Continue.

Yes: Go to #13 in this TAG.

- 11** Turn off the printer.
- Disconnect J/P308.
 - Turn on the printer.
 - Check J308-1 and J308-5 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 12** Disconnect J/P314.
- Check for continuity:
P308-1 to J314-1
P308-5 to J314-2

Is there continuity?

No: Repair or replace the wiring or connectors from:

P308-1 to J314-1 or

P308-5 to J314-2;

then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the input solenoid, then turn to [TAG 002: Check & Problem Resolution](#).

- 13** Turn the printer on.
- Run diagnostic test 018.
- Is the C roller solenoid in good working order?**

No: Continue.

Yes: Go to #16 in this TAG.

- 14** Turn off the printer.
- Disconnect J/P308.
 - Turn on the printer.
 - Check J308-2 and J308-6 for +24 Vdc.

Is the voltage +24 Vdc?

No: Replace duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

- 15** Disconnect J/P315.
- Check the following for continuity:
P308-2 to P315-1, and

P308-6 to P315-2.

Is there continuity?

No: Repair or replace the wiring or connectors from:
P308-2 to P315-1, or
P308-6 to P315-2,
then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the “C” roller solenoid, then turn to [TAG 002: Check & Problem Resolution](#).

16 Turn the printer on.

- Run diagnostic test 016.

Is the feed motor in good working order?

No: Continue.

Yes: Go to #21 in this TAG.

17 Turn the printer off.

- Disconnect J/P309.
- Check P309-7 to P309-8 for continuity.

Is there continuity?

No: Go to #19 in this TAG.

Yes: Continue.

18 Check P309-9 to P309-10 for continuity.

Is there continuity?

No: Continue.

Yes: Replace duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

19 Disconnect J/P313.

- Check the following for continuity:
P309-7 to J313-1,
P309-8 to J313-2,
P309-9 to J313-3, and
P309-10 to J313-4.

Is there continuity?

No: Repair or replace the wiring or connectors from P309 to J313 that have no continuity,
then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

20 Check the following for continuity:

- P313-1 to P313-2
- P313-3 to P313-4

Is there continuity?

No: Replace the route motor, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Replace the duplex control board #1, then turn to [TAG 002: Check & Problem Resolution](#).

21

Turn the printer on.

- Check J/P306-3 to J/P306-4 for +5 Vdc.

Is the voltage +5 Vdc?

No: Repair or replace the wiring or connectors from P306-3 to J/P331-3 to P330-3, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

22

Check J/P306-2 to J/P306-4 for +12 Vdc.

Is the voltage +12 Vdc?

No: Repair or replace the wiring or connectors from P306-2 to J/P331-2 to P330-2, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Continue.

23

Check J/P306-1 to J/P306-4 for +24 Vdc.

Is the voltage +24 Vdc?

No: Repair or replace the wiring or connectors from P306-1 to J/P331-1 to P330-1, then turn to [TAG 002: Check & Problem Resolution](#).

Yes: Return to the beginning of this TAG.

Chapter 4

Print Quality Samples

Contents

Print Quality Samples

Sample 1: Good Quality Print	4-4
Sample 2: Washout	4-5
Sample 3: Blank Print	4-6
Sample 4: Light Print	4-7
Sample 5: Light Print With Background	4-8
Sample 6: Voids or White Spots	4-9
Sample 7: Light Vertical Streaks	4-10
Sample 8: Blank Vertical Bands	4-11
Sample 9: Light Horizontal Bands	4-12
Sample 10: Black or Dark Print	4-13
Sample 11: Dark Specks, Lines, or Areas	4-14
Sample 12: Dark Vertical Lines	4-15
Sample 13: Skewed Prints	4-16
Sample 14: Misregistration	4-17
Sample 15: Overtone Print	4-18
Sample 16: Blurred Images or Characters	4-19
Sample 17: Varying Print Density	4-20
Sample 18: Background	4-21
Sample 19: Residual Images	4-22
Sample 20: Wrinkles	4-23
Sample 21: Fusing Problems	4-24

Print Quality Samples

This section contains flawed test prints, along with a good test print for comparison. Compare print samples from your customer's print job or from test prints you've run with the samples in this section. If you find a match, note the TAG (i.e., troubleshooting procedure) listed under the sample. Turn to that TAG to begin troubleshooting. All of the TAGs are outlined in [Chapter 3, "Troubleshooting Analysis Guide \(TAGs\)"](#)

If your customer's prints show more than one problem, resolve them one at a time, in the order in which they are listed in this section.

Sample 1: Good Quality Print

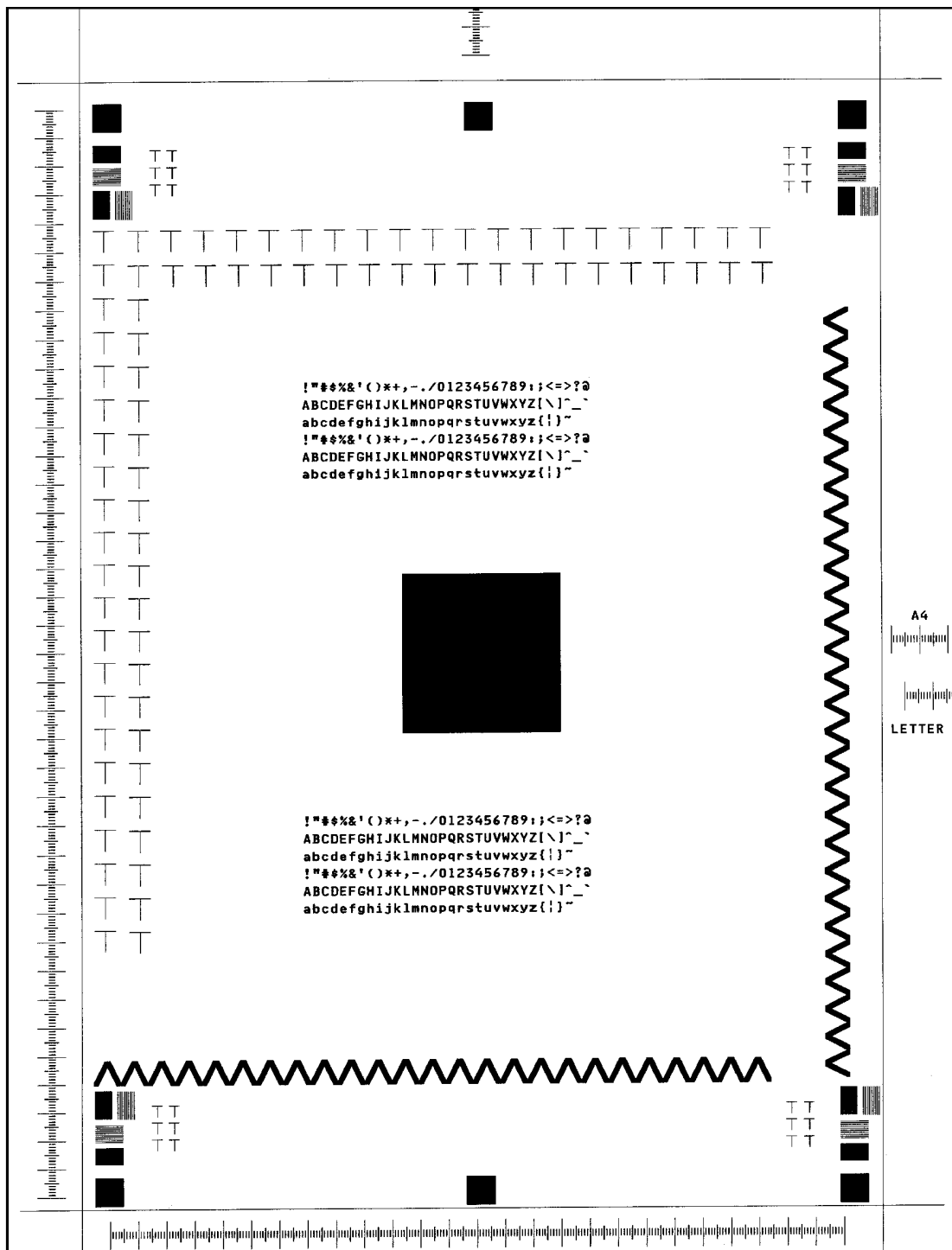


Figure 4-1. Good Quality Print

Description: Good, properly registered print.

Sample 2: Washout

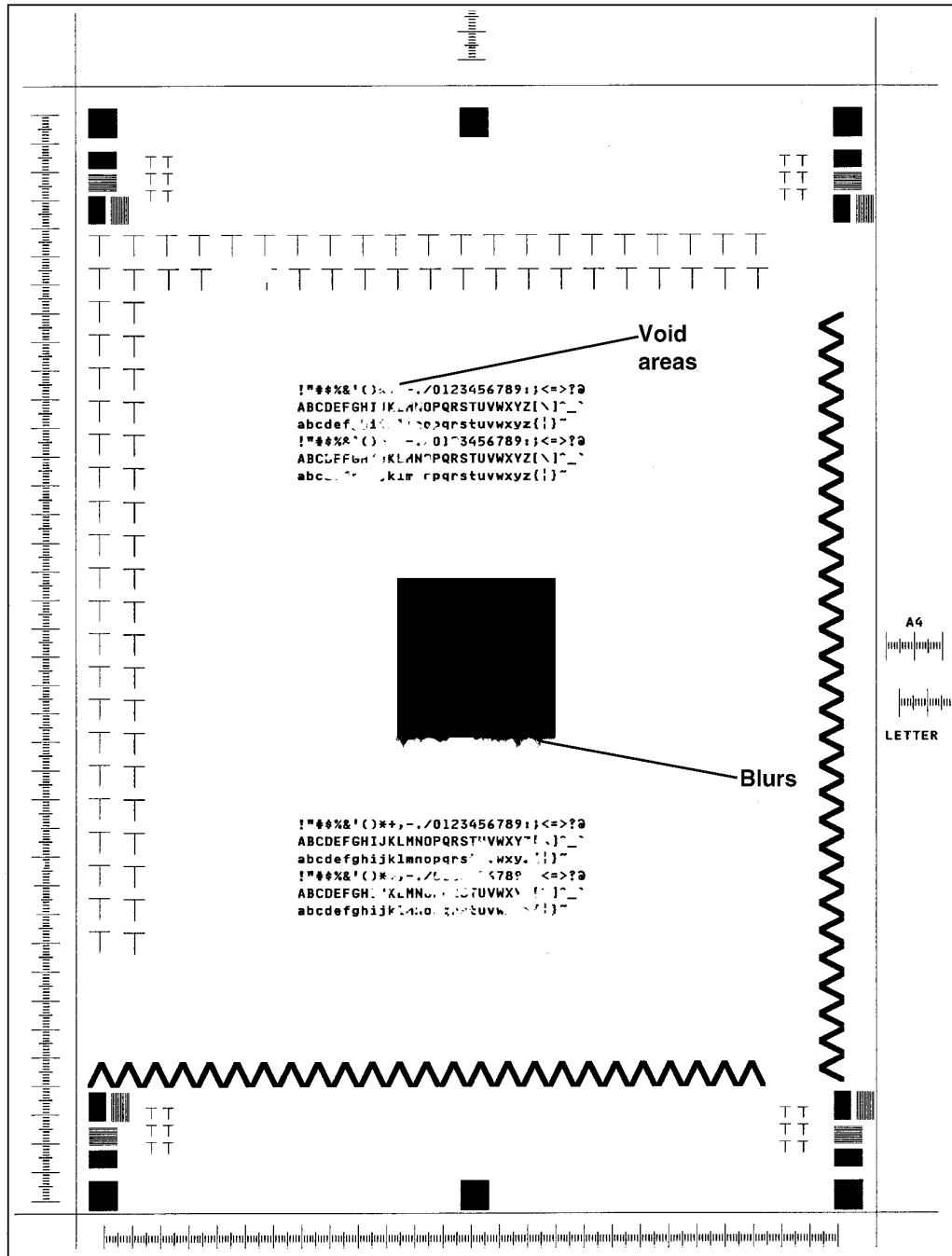


Figure 4-2. Washout

Description: Void areas, light spots, or blurs. This is a composite of possible symptoms.

Go to [TAG 801: Prints Light or Light With Carrier Particles](#), [TAG 802: Prints With Voids or White Spots](#), [TAG 809: Blurred or Smeared Vertical Streaks on Prints](#), or [TAG 810: Uneven Density or Dark Areas on Prints](#).

Sample 3: ;Blank Print

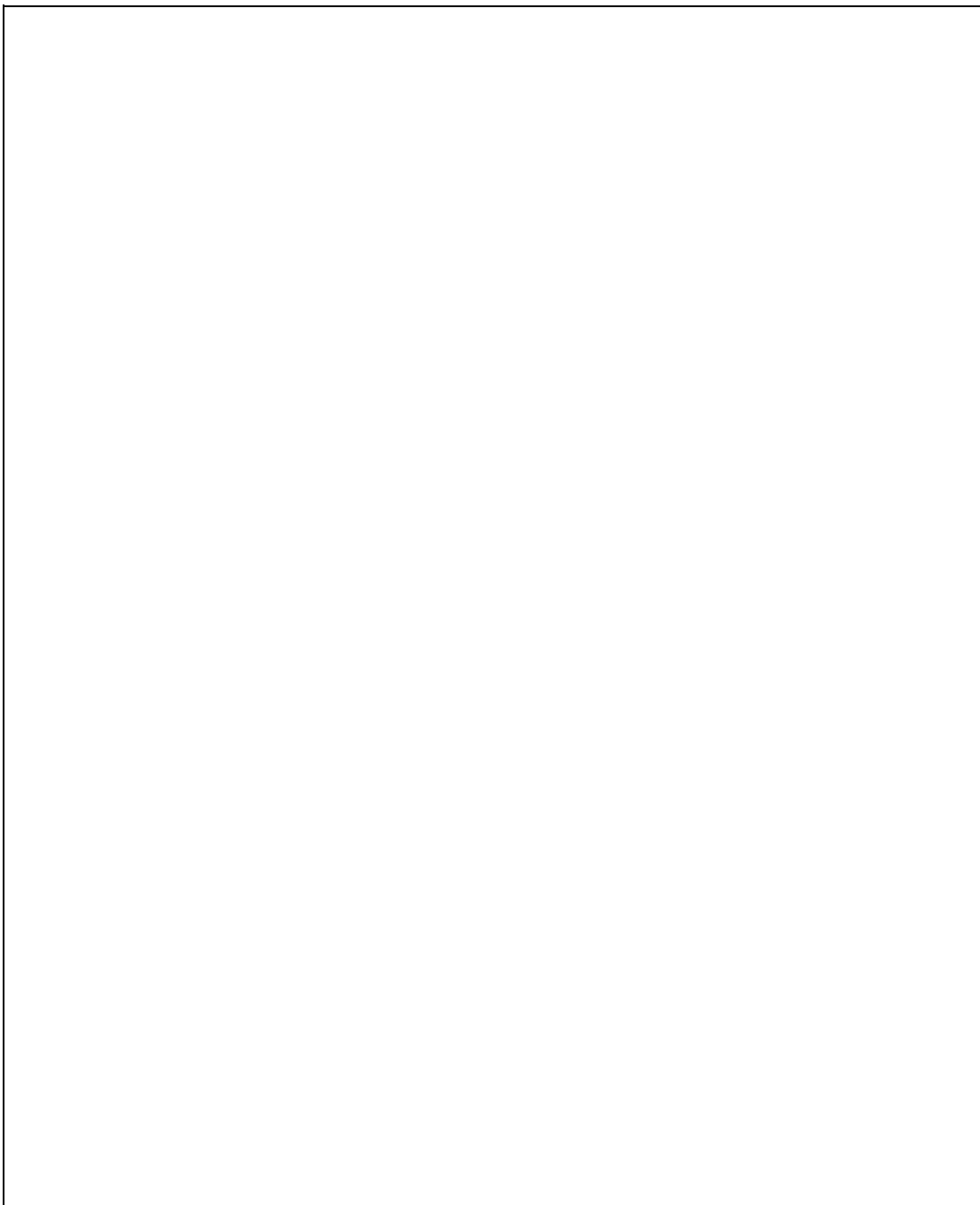


Figure 4-3. Blank Print

Description: No images or characters. The paper is not discolored.

Go to [TAG 800: Prints Blank or With Dark Horizontal Bands](#), [TAG 815: Prints Resulting From Printhead Malfunctions](#).

Sample 4: Light Print

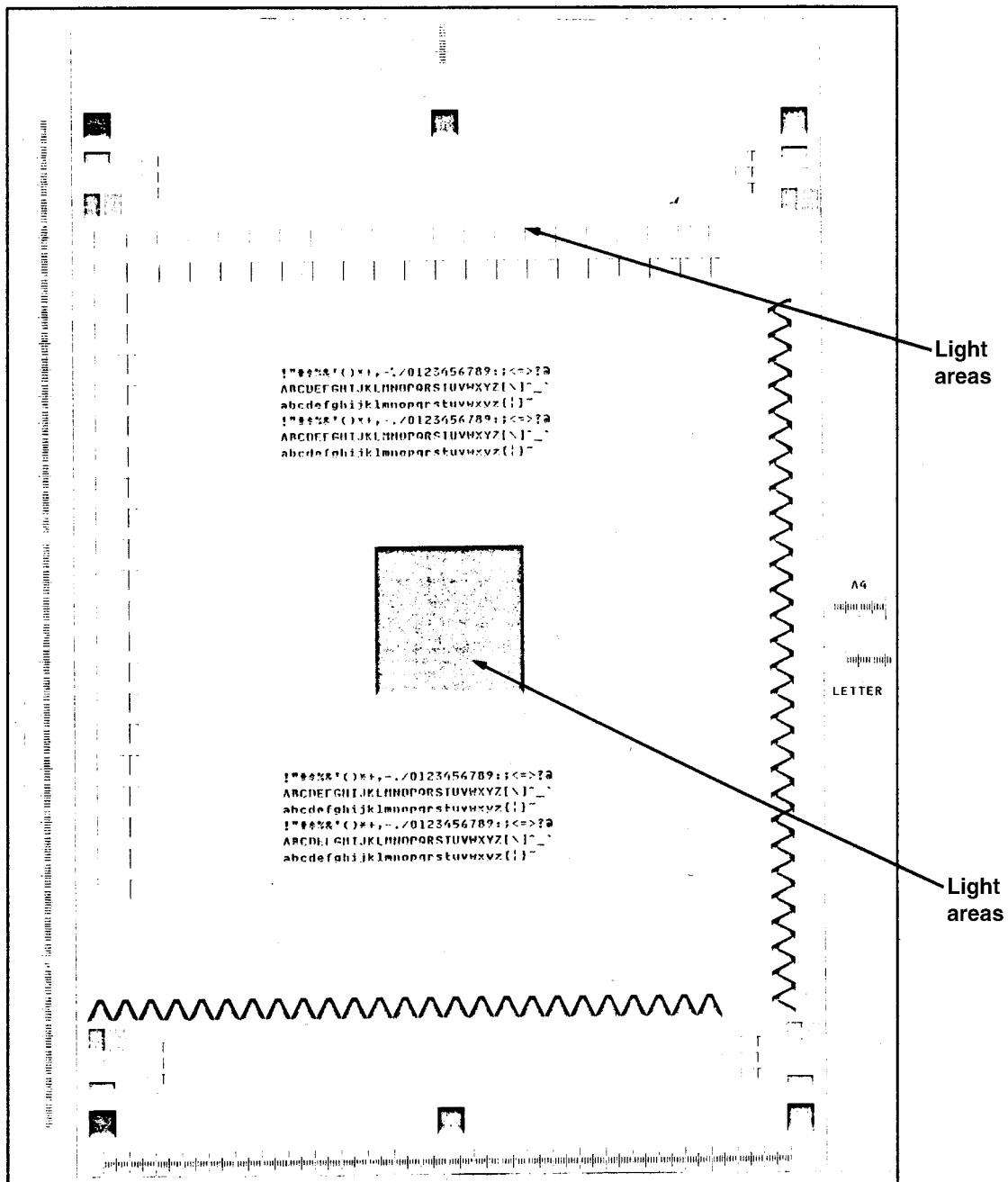


Figure 4-4. Light Print

Description: Images or characters are lighter than normal. Examine the letters H, T, M, and E; if the vertical strokes are dark enough but the diagonal strokes are stair-stepped, the problem is related to the printhead. Carrier particles may make the print feel gritty.

Go to [TAG 801: Prints Light or Light With Carrier Particles](#).

Sample 5: Light Print With Background

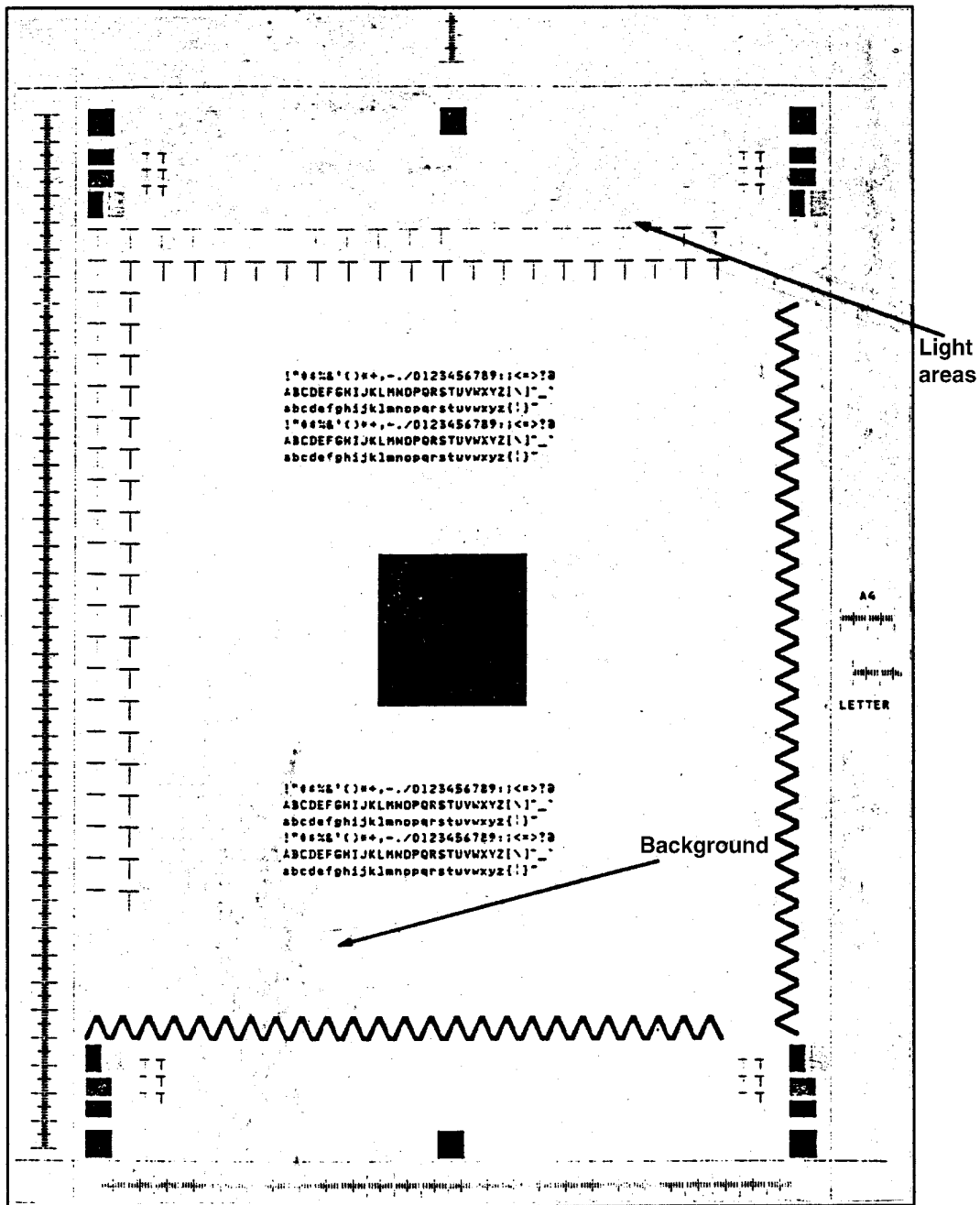


Figure 4-5. Light Print With Background

Description: Images or characters lighter than normal, ranging from a few dark specks to a large speckled background.

Go to [TAG 811: Background/Residual Images/Dark Prints](#).

Sample 6: Voids or White Spots

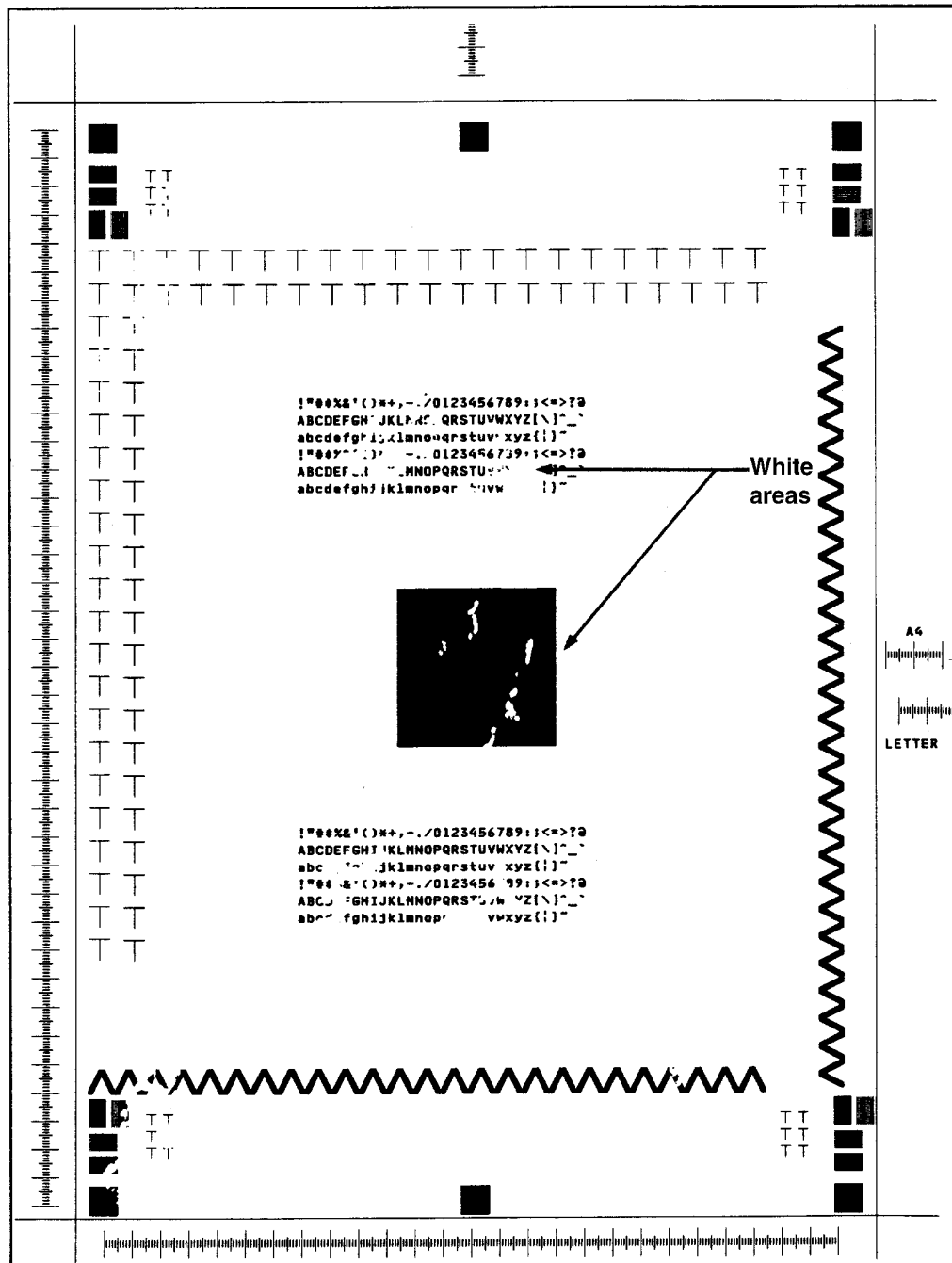


Figure 4-6. Voids of White Spots

Description: Voids or white spots in image areas.

Go to [TAG 802: Prints With Voids or White Spots](#).

Sample 7: Light Vertical Streaks

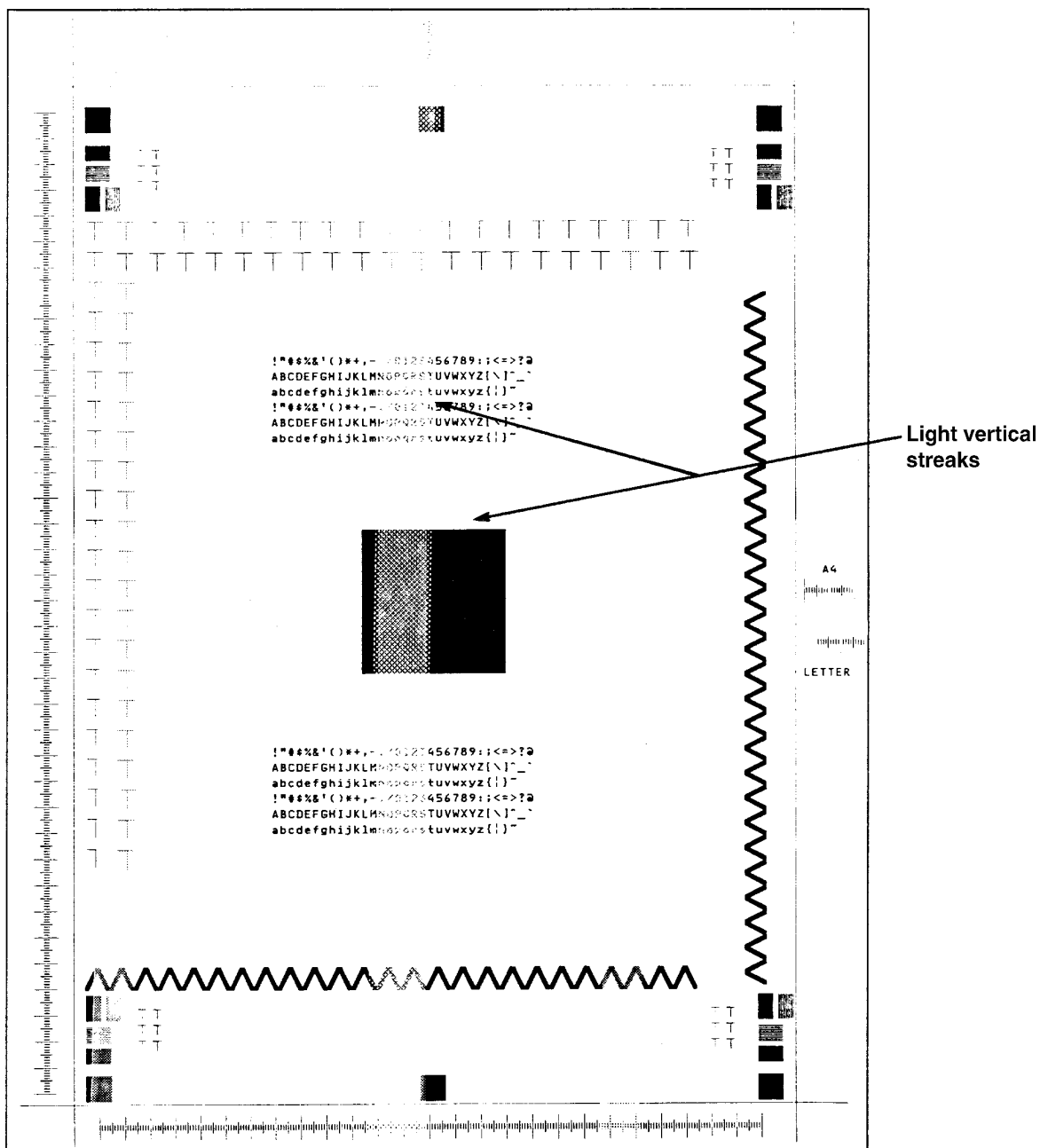


Figure 4-7. Light Vertical Streaks

Description: One or more light vertical streaked areas of varying widths.

Go to [TAG 803: Prints With Light or White Vertical Streaks](#).

Sample 8: Blank Vertical Bands

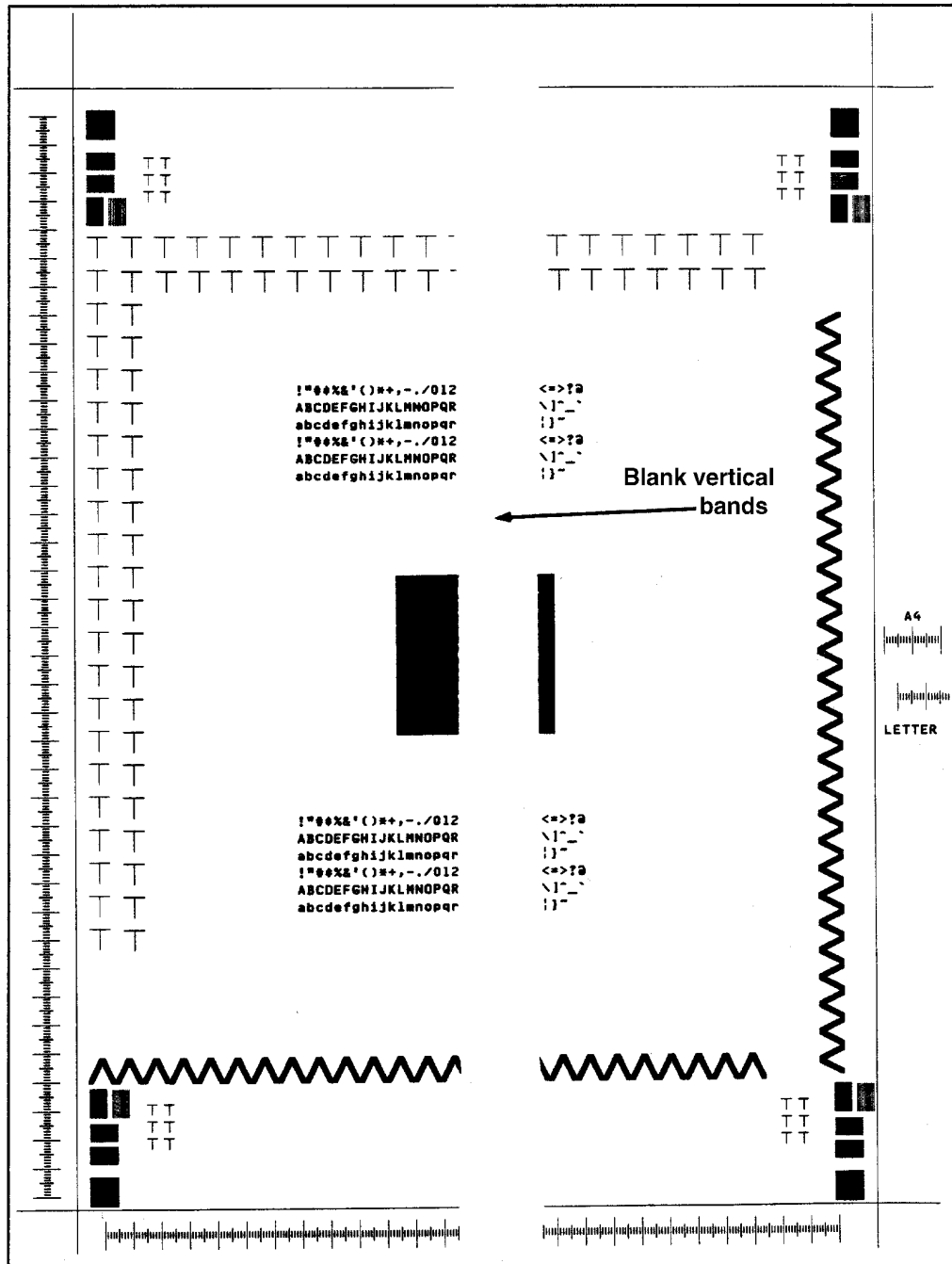


Figure 4-8. Blank Vertical Bands

Description: One or more vertical blank bands of varying widths extend over the entire length.

Go to [TAG 803: Prints With Light or White Vertical Streaks](#).

Sample 9: Light Horizontal Bands

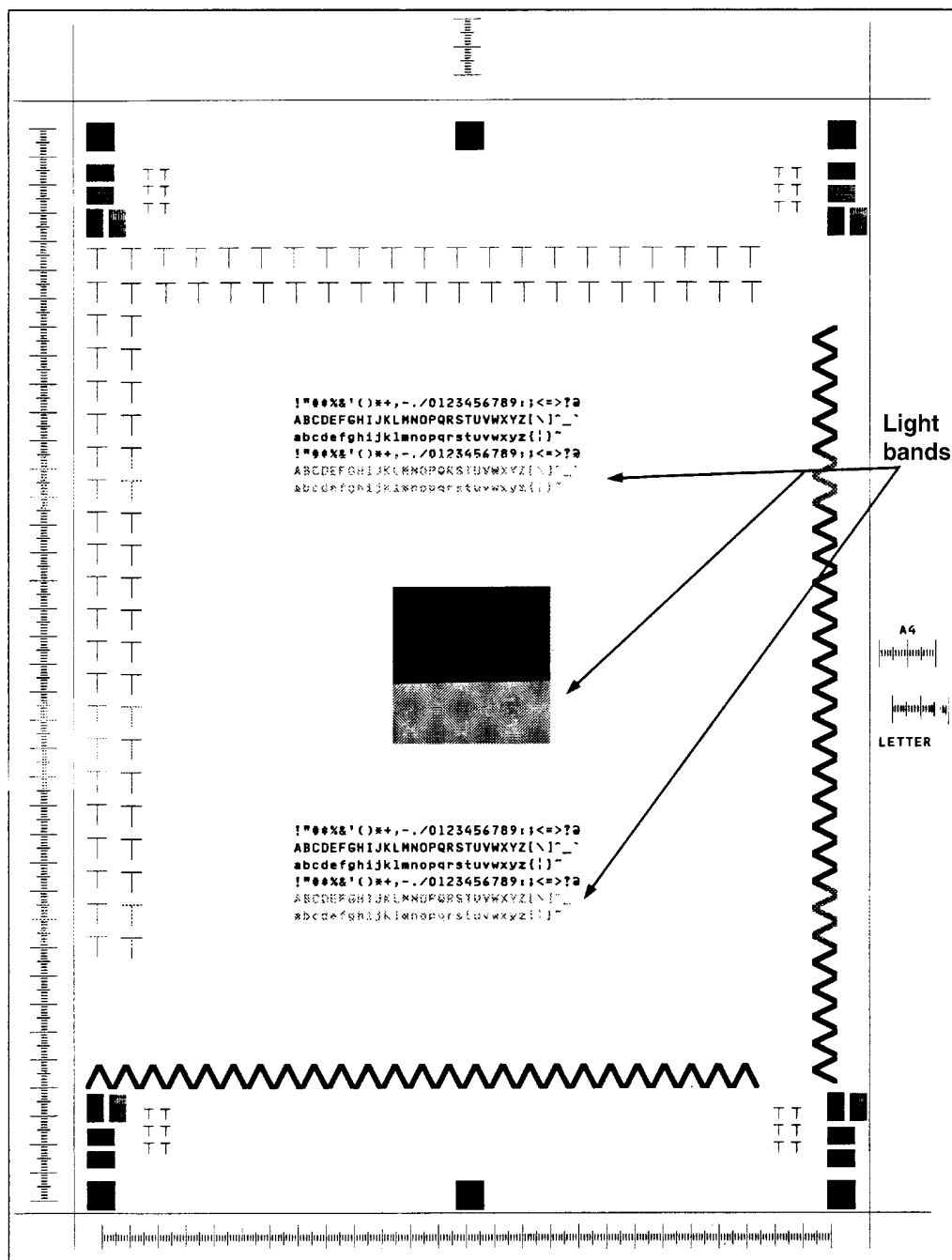


Figure 4-9. Light Horizontal Bands

Description: One or more light horizontal bands of varying width.

Go to [TAG 804: Prints With Light Horizontal Bands](#).

Sample 10: Black or Dark Print

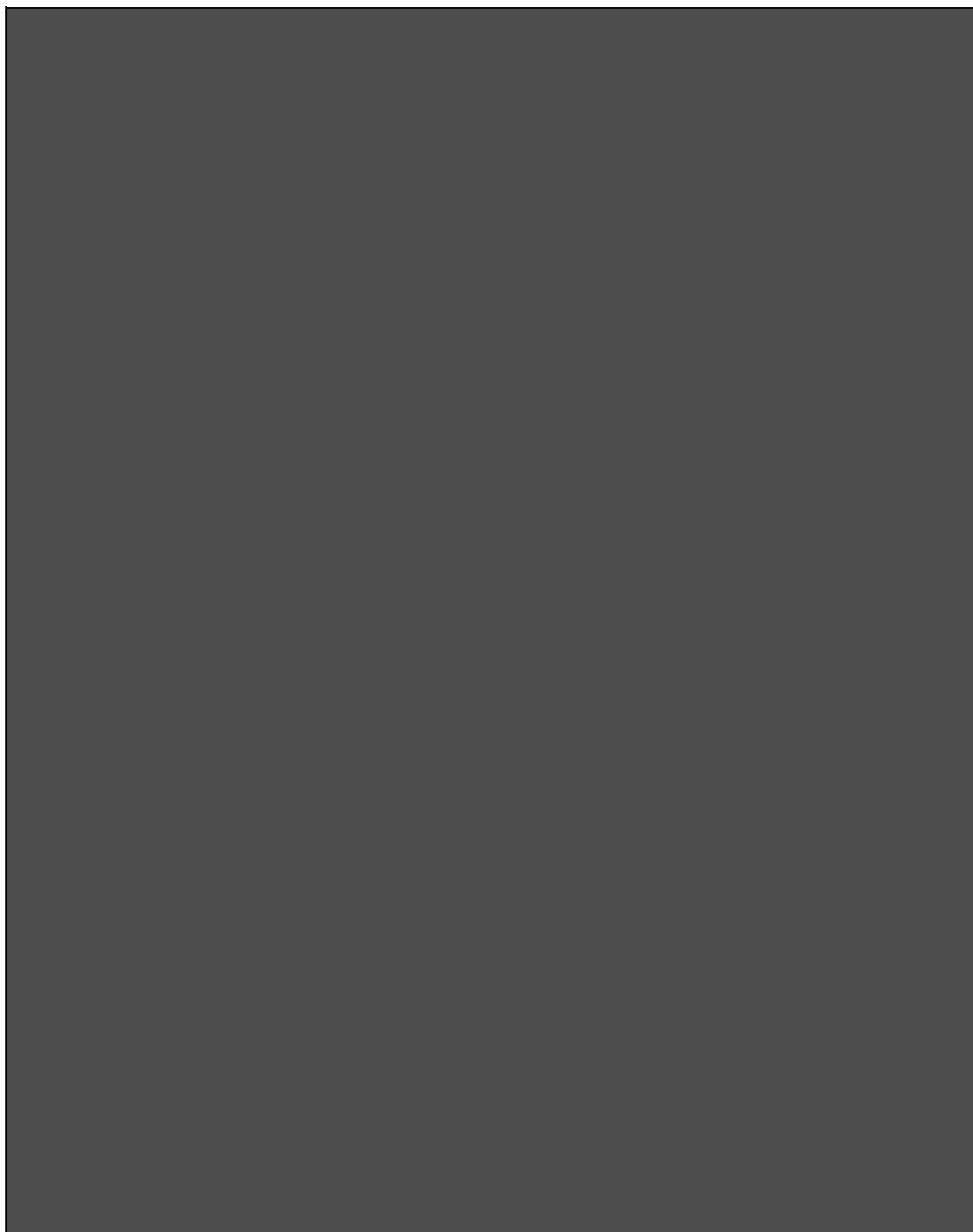


Figure 4-10. Black or Dark Print

Description: Black or very dark with no visible images.

Go to [TAG 805: Black Prints](#), [TAG 811: Background/Residual Images/Dark Prints](#).

Sample 13: Skewed Prints

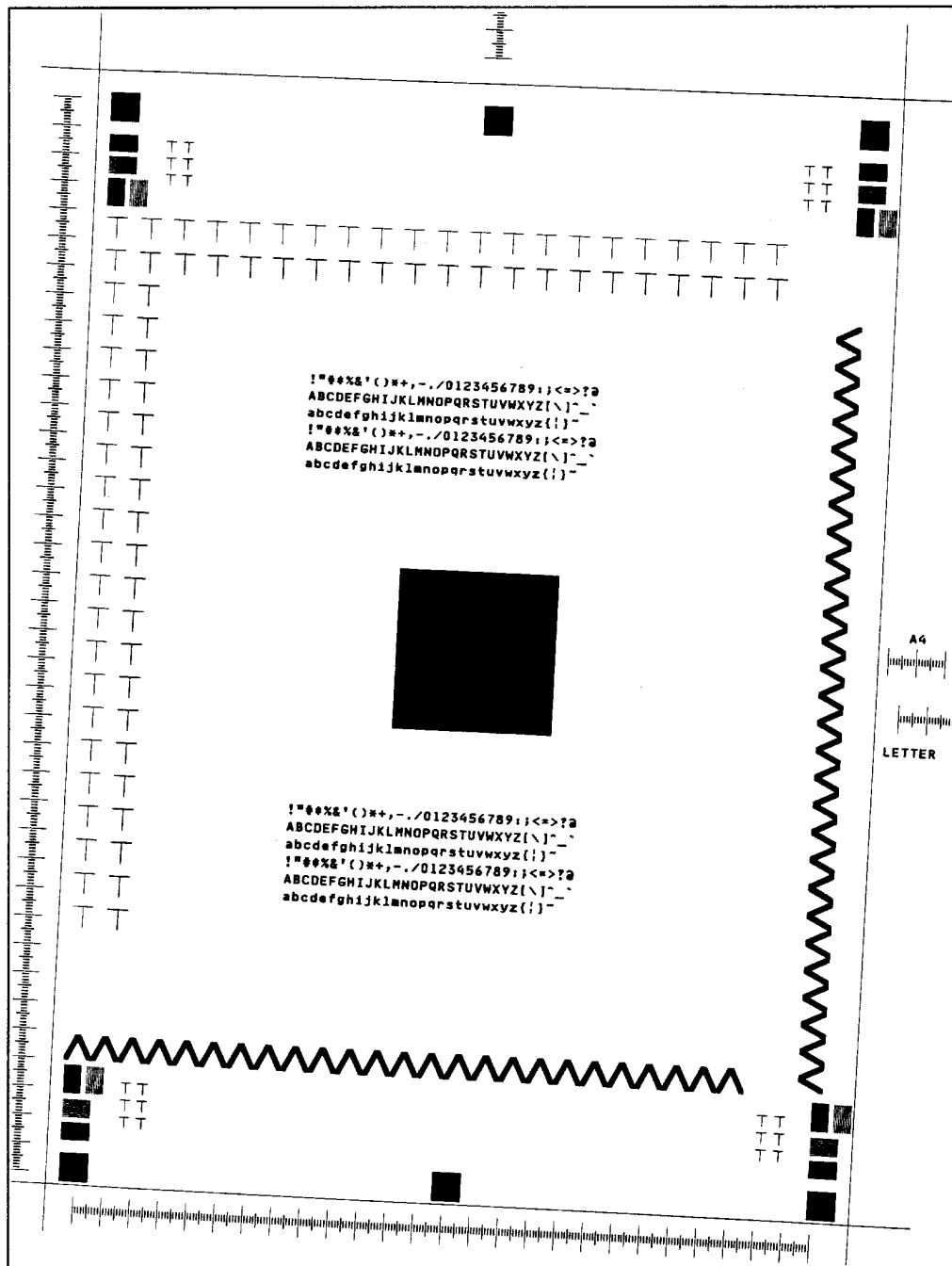


Figure 4-13. Skewed prints

Description: The entire image is not located squarely on the paper.

Go to [TAG 807: Misregistered/Skewed Prints \(Simplex\)](#) or [TAG 901: Misregistration/Skewed Prints \(Duplex\)](#).

Sample 14: Misregistration

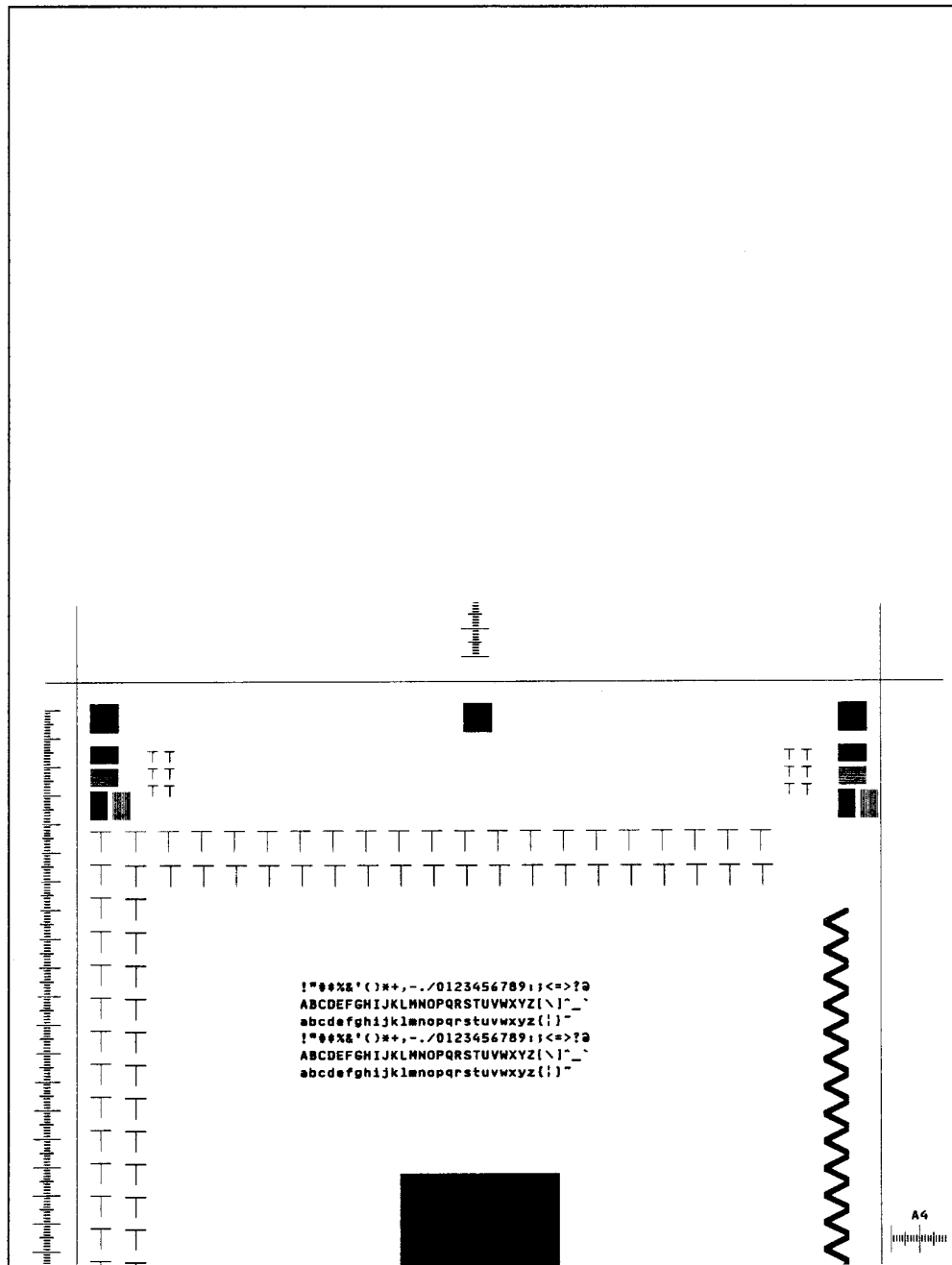


Figure 4-14. Misregistration

Description: The entire image is not correctly located from the leading edge of the paper. The top or bottom image area may be missing.

Go to [TAG 807: Misregistered/Skewed Prints \(Simplex\)](#) or [TAG 901: Misregistration/Skewed Prints \(Duplex\)](#).

Sample 15: Overtoned Print

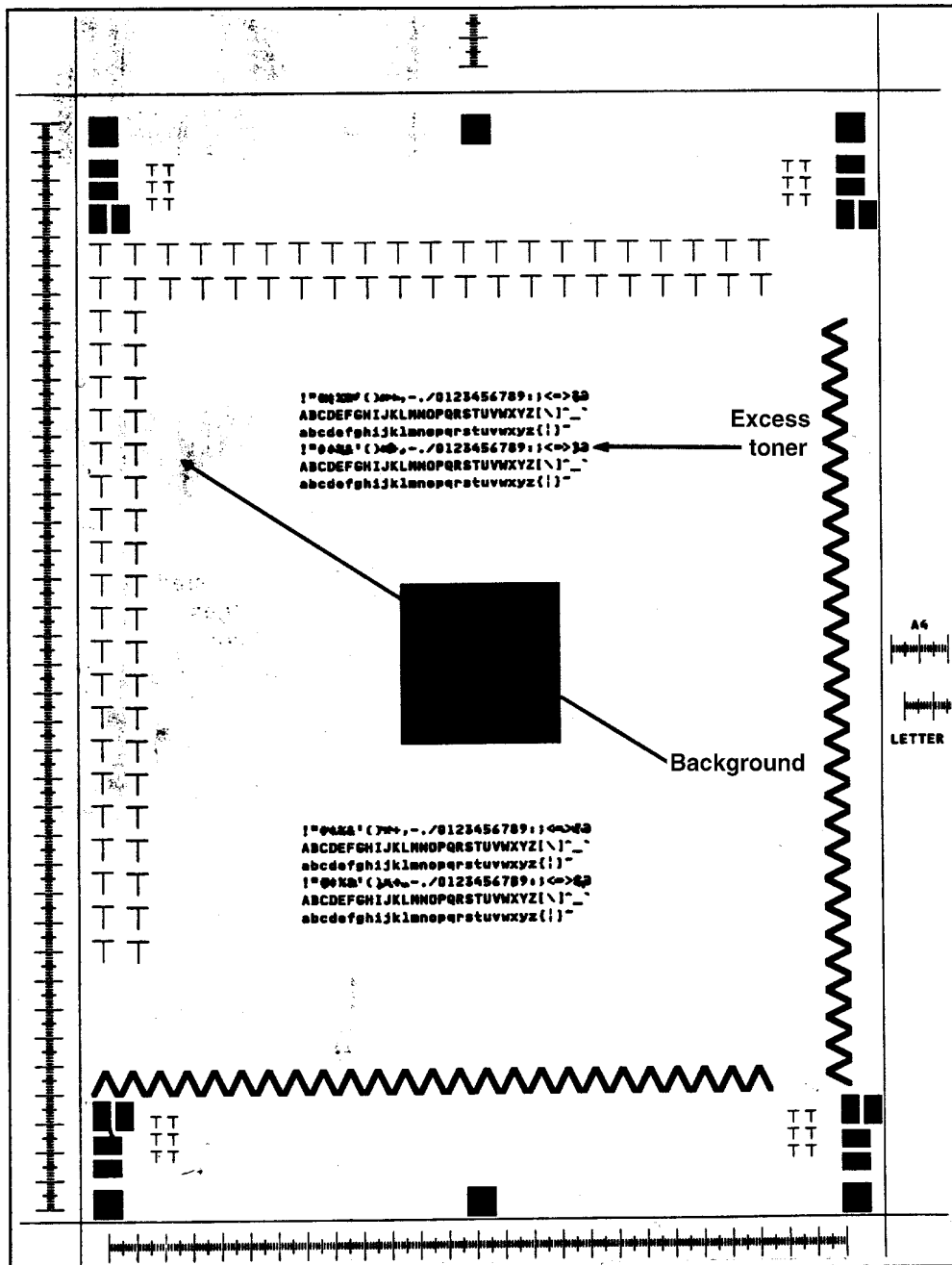


Figure 4-15. Overtoned Print

Description: Similar to dark print quality problems. Narrow gaps between letters and images may be filled with toner. Excess toner may be present on the surface of the print. Extra toner can also cause background in the white areas.

Go to [TAG 809: Blurred or Smeared Vertical Streaks on Prints.](#)

Sample 16: Blurred Images or Characters

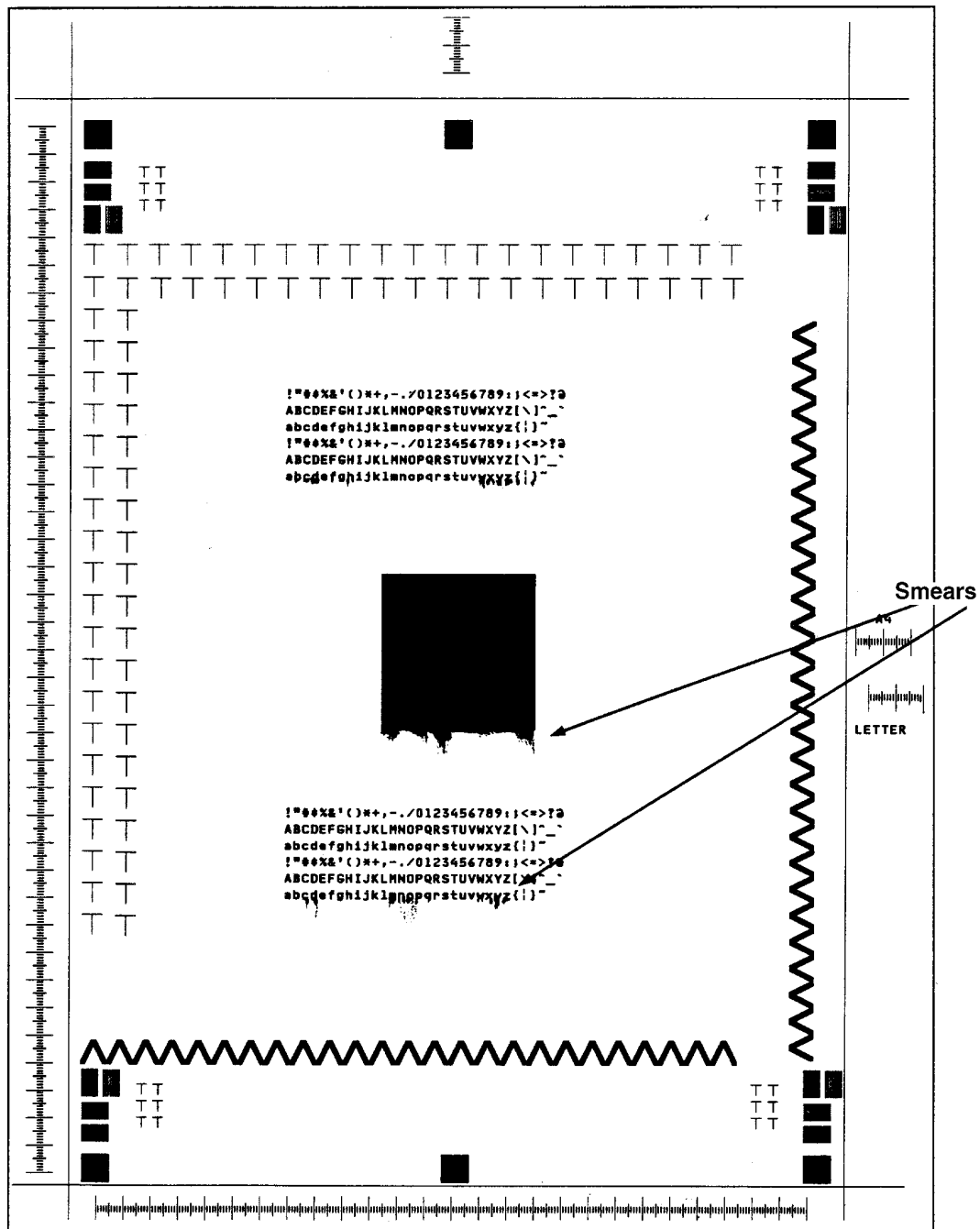


Figure 4-16. Blurred Images or Characters

Description: The images or characters are not clear. The lower edges of images and/or characters are extended and may appear smeared.

Go to [TAG 809: Blurred or Smeared Vertical Streaks on Prints.](#)

Sample 17: Varying Print Density

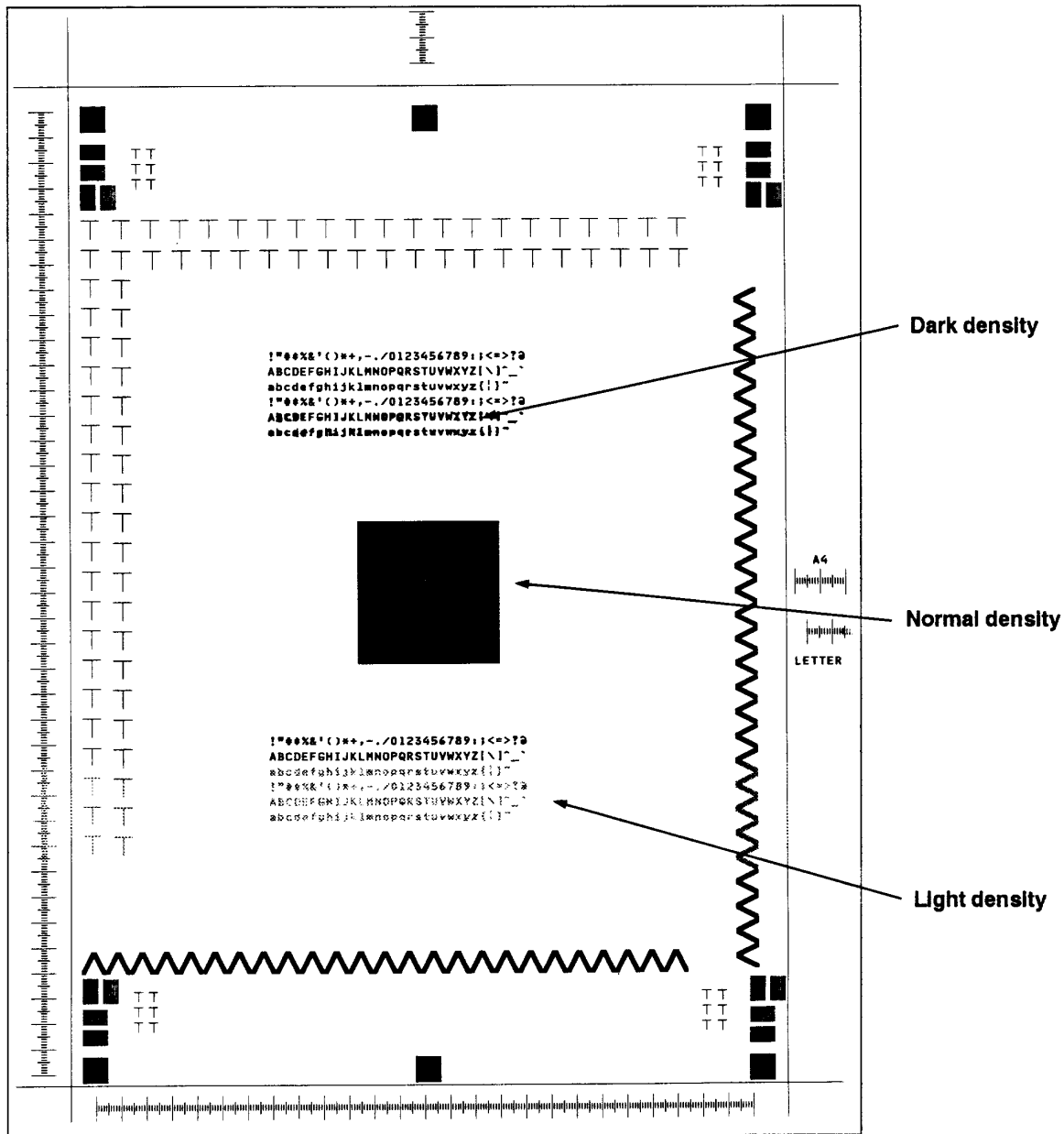


Figure 4-17. Varying Print Density

Description: Some areas of the print are lighter or darker than normal. Examine the letters H, T, M, and E on your test print. If the vertical sections are sufficiently dark, but the diagonal sections appear stair-stepped, the problem may be related to the printhead.

Go to [TAG 810: Uneven Density or Dark Areas on Prints](#), [TAG 815: Prints Resulting From Printhead Malfunctions](#).

Sample 18: Background

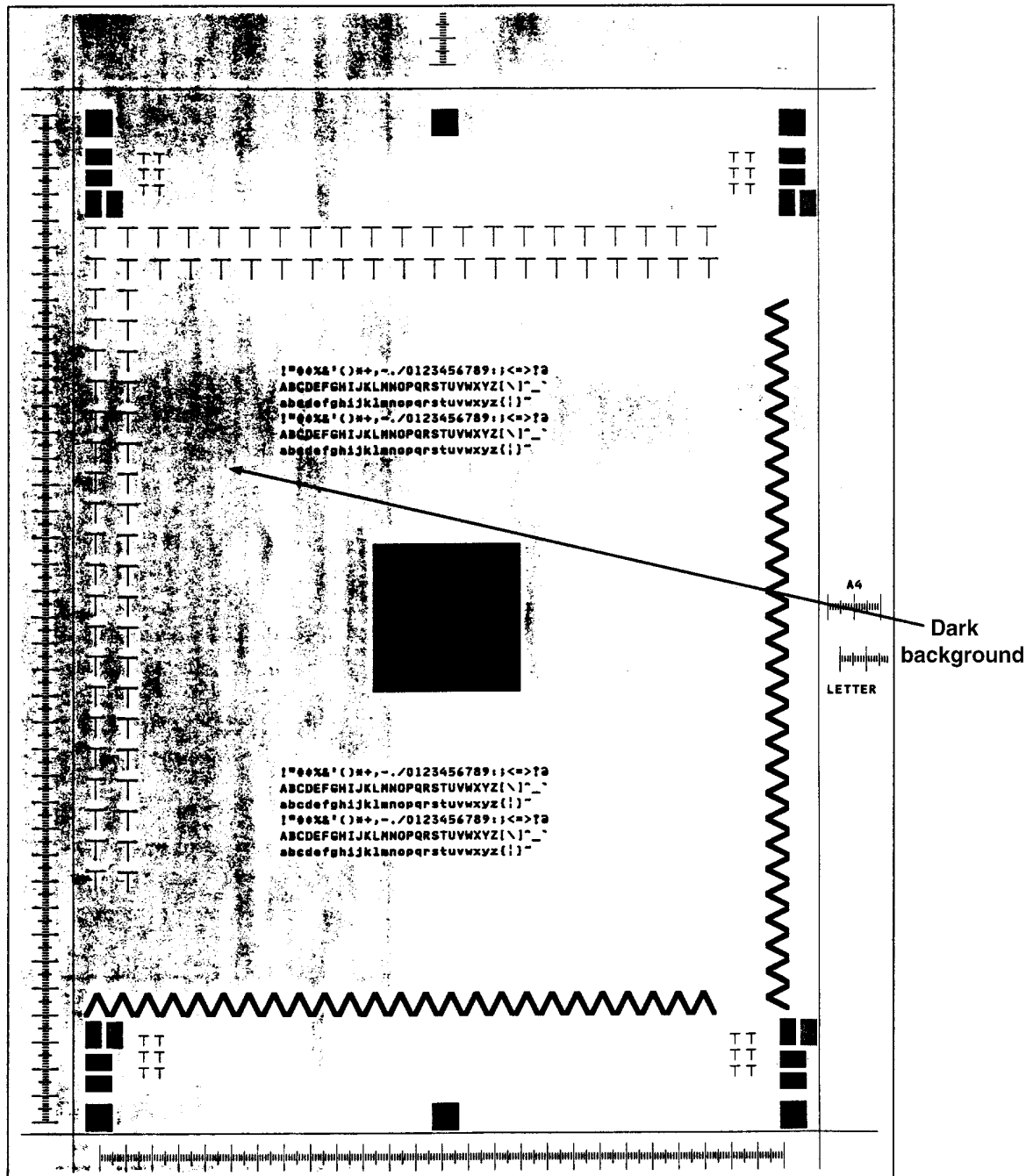


Figure 4-18. Background

Description: White areas on the prints have varying degrees of specks appearing in a specific pattern.

Go to [TAG 811: Background/Residual Images/Dark Prints](#).

Sample 19: Residual Images

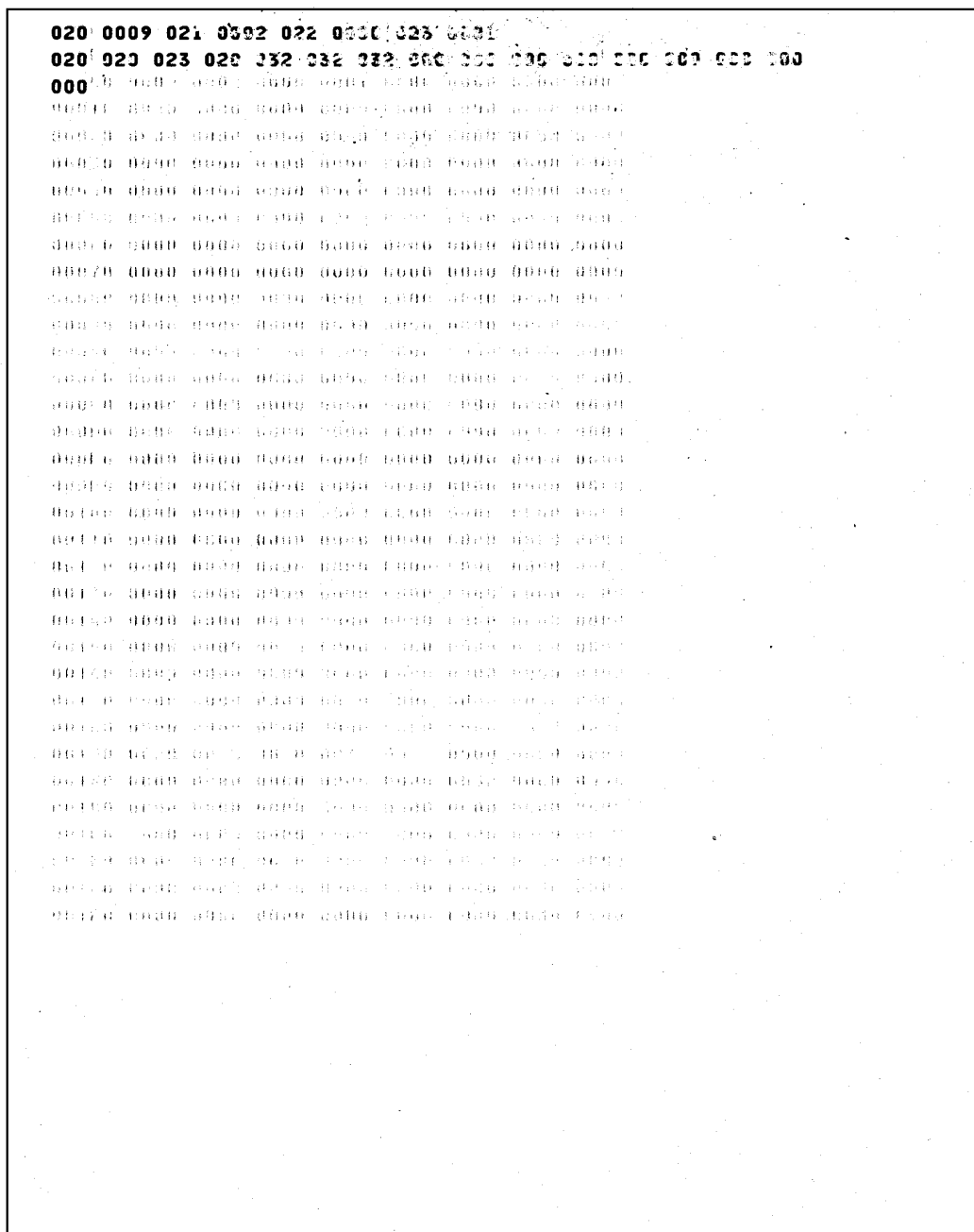


Figure 4-19. Residual Images

Description: Images from a previous print are visible. White areas on the print may have varying degrees of specks appearing in a specific pattern.

Go to [TAG 811: Background/Residual Images/Dark Prints](#), [TAG 813: Residual Images on Prints](#).

Sample 20: Wrinkles

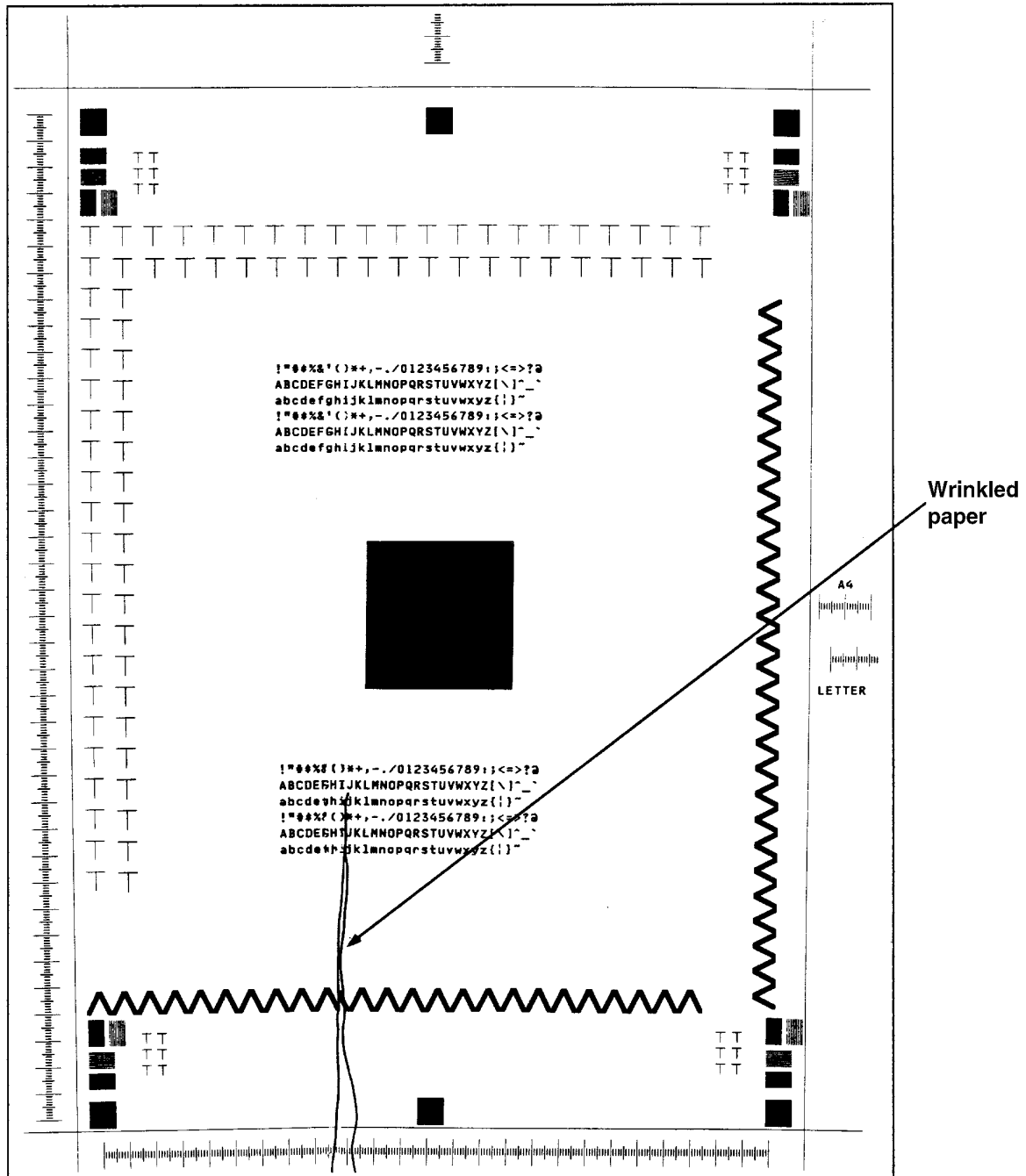


Figure 4-20. Wrinkles

Description: Wrinkles or creases, often at the top or bottom.

Go to [TAG 706: Paper Damaged or Wrinkled](#).

Sample 21: Fusing Problems

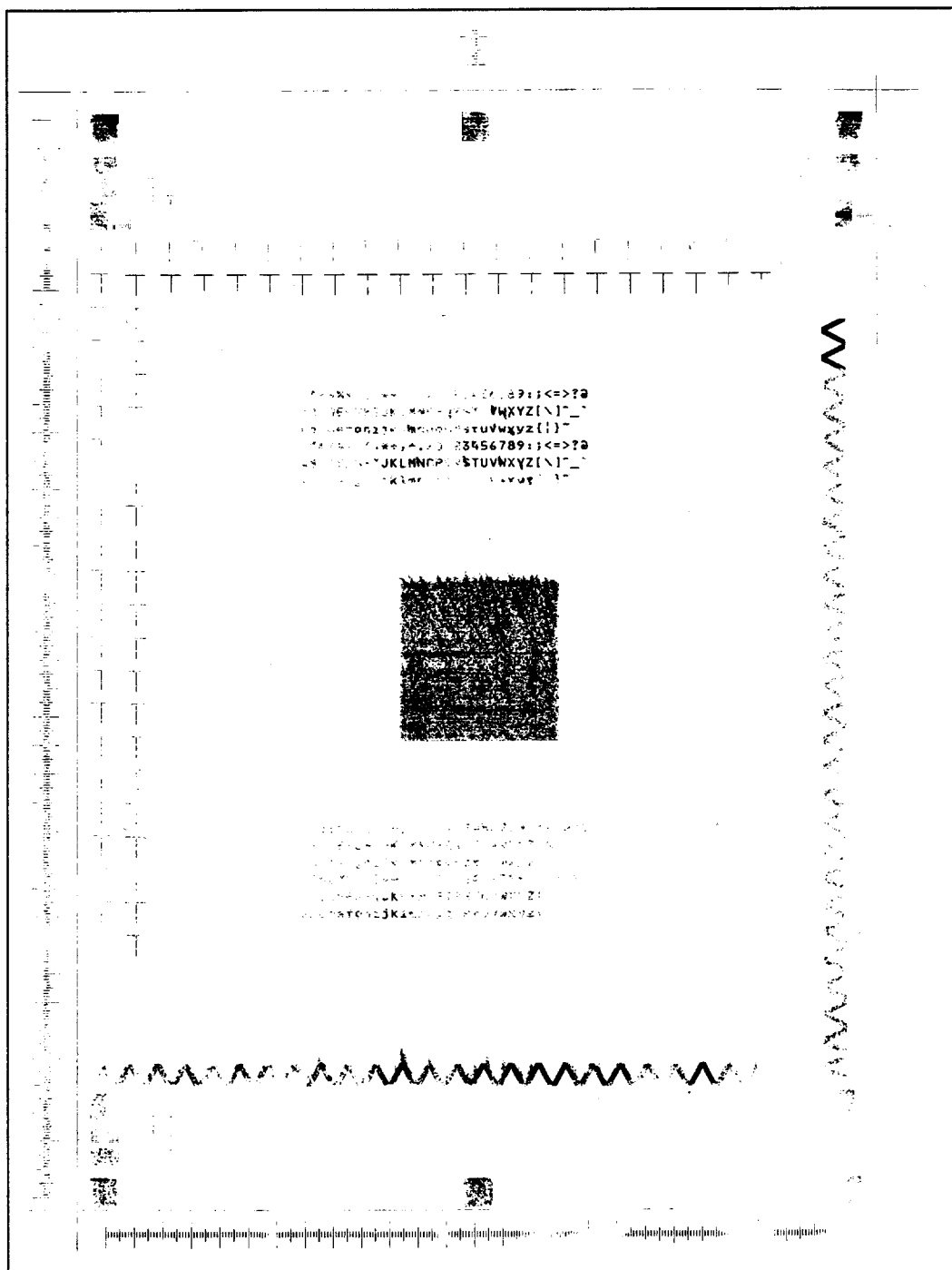


Figure 4-21. Fusing Problems

Description: Images or characters may rub off the surface.

Go to [TAG 812: Uneven or No Fusing on Prints](#).

Chapter 5

Diagnostic Tests

Contents

How to Run Diagnostics	5-3
001 Operator Panel Test	5-4
002 Upper Cassette Test	5-4
003 Lower Cassette Test	5-5
005 Sensor Test Sequence	5-6
006 Paper Transport Clutch Test Sequence	5-7
007 Counter Test	5-7
008 Jogging Motor Test	5-8
009 Photoconductor Test	5-8
010 Toner Supply Motor Test	5-9
011 Main Charger Test	5-10
012 Transfer Charger Test	5-11
013 Erase Lamp Test	5-12
015 Negative Developer Bias Test	5-13
016 Duplex Feed Motor Test	5-14
017 Duplex Input Sensor Test Sequence	5-15
018 Duplex Clutch Test Sequence	5-16
019 Duplex Tray Paper-Guide Motor Test	5-17
020 High-Capacity Output Unit Test	5-18
021 High-Capacity Input Unit Test	5-19
022 Envelope Fuser Solenoid Test	5-19
101 EIGS/MIGS Board Test	5-20
102 EIGS/MIGS Board Test (Continuous Loop)	5-20
103 Communication Loop-back Test (Single Loop)	5-21
104 Communication Loop-back Test (Continuous Loop)	5-22
105 EIGS Program RAM Test (Continuous Loop)	5-22
107 EIGS/MIGS Bit Map Test (Single Loop)	5-23
108 EIGS/MIGS Bit Map Test (Continuous Loop)	5-23
110 Format Disk/Clear Error Log	5-24
111 LED Printhead Test	5-24
112 Disk Drive Test (Single Loop With Stop on Error)	5-25
113 Disk Drive Test (Continuous Loop)	5-26

Diagnostic Tests

This section provides step-by-step instructions for running each of the diagnostic tests available through the self-diagnostic mode of the printer. Each test is referenced by number. Check the contents page to find the page on which a specific test is described.

How to Run Diagnostics

Follow these steps to access the self-diagnostic mode of the printer:

- 1** Turn off the printer and wait five seconds.
- 2** Hold down the STOP and TEST keys simultaneously as you turn the printer back on. Continue to hold the keys down until O appears on the display. The STANDBY light flashes as the printer accesses its soft diagnostic mode, which takes approximately 1 minute. The tone, followed by 001 on the display, indicates you can now run a test.
- 3** Change the counter to the number of the test you wish to run by pressing CANCEL to increase the counter or # TEST to decrease the counter. If you press these keys before a test is complete, a long tone sounds and the test continues without interruption.
- 4** Press READY to run the test.
- 5** Press STOP to end the test (in most cases; see specific diagnostic procedures for directions on exiting a test).
- 6** To exit diagnostic mode, cycle printer power.
 - Most errors or conditions reported are valid for about 90 seconds, which is the timeout period set for most of the diagnostic tests described in this section.

Note

Only diagnostics useful for field maintenance are documented in this manual.

001 *Operator Panel Test*

- 1** Turn the volume control on the operator panel up fully.
 - 2** Go to: 001
 - 3** Press: READY to run the test.
 - 4** Confirm that the tone sounds and all lights turn on and off continuously.
 - 5** Press: STOP to exit.
-

002 *Upper Cassette Test*

- 1** Make sure the upper paper cassette is installed with paper, the side and rear guides securely against the edges of the paper in the cassette.
- 2** Go to: 002
- 3** Press: READY to run the test.
- 4** Refer to the chart below to confirm that the code that displays corresponds to the paper size in the cassette. (For example, if the cassette holds letter size paper, “1-3” should appear on the display.) This indicates the paper size sensor is working properly. The following codes indicate paper sizes:

Table 5-1. Paper Size Codes

Display	Indication
1-0	Cassette not installed
1-1	A4-size paper in use
1-2	B5-size paper in use
1-3	Letter-size paper in use
1-4	Legal-size paper in use
1-5	Executive 1 size paper in use
1-6	Executive 2 size paper in use
1-7	Executive 3 size paper in use
1-8	Envelopes in use
1-9	Undefined paper size

- 5** Press: STOP to exit.

003 *Lower Cassette Test*

- 1** Make sure the lower paper cassette is installed with paper, the side and rear guides securely against the edges of the paper in the cassette.
- 2** Go to: 003
- 3** Press: READY to run the test.
- 4** Refer to the chart below to confirm that the code that displays corresponds to the paper size in the cassette. (For example, if the cassette holds letter size paper, “1-3” should appear on the display.) This indicates the paper size sensor is working properly. [Table 5-1, “Paper Size Codes”](#), lists the paper size codes.

Note

A 1-9 is displayed when a high-capacity paper feed unit is installed; refer to “021 - High Capacity Unit Input Test”

- 5** Press: STOP to exit.

(004 intentionally excluded)

005 *Sensor Test Sequence*

- 1 Go to: 005
- 2 Press: READY to run the test. The code for the first sensor (i.e., “0-0” or “0-1”) appears on the display, confirming that the sensor is working properly.

Note

No paper moves through the machine, so indications of “No paper at sensor location” are normal.

- 3 Press: READY to advance to the next sensor. The display changes, showing the code for the next sensor as outlined in [Table 5-2, “Sensor Test Displays”](#), below.

Table 5-2. Sensor Test Displays

Sensor Description	Display
Upper paper cassette	0-0: Cassette full 0-1: Cassette empty
Lower paper cassette	1-0: Cassette full 1-1: Cassette empty
Paper timing sensor	2-0: No paper at sensor location 2-1: Paper at sensor
Paper exit sensor	3-0: No paper at sensor location 3-1: Paper at sensor
Paper full sensor	4-0: Tray empty 4-1: Tray full
Jogging sensor, front	5-0: Tray in front position 5-1: Error – tray in rear position
Jogging sensor, rear	6-0: Tray in rear position 6-1: Error – tray in front position
PC seam sensor	7-0: Active 7-1: Not active
Developer interlock	8-0: Developer unit in place 8-1: Developer unit not in place

- 4 To check a specific sensor, press READY repeatedly until the code on the display corresponds to the sensor you want to check. Manually activate the sensor. Confirm that the display changes when you activate the sensor. Refer to [“Sensor and Switch Locations” on page 1-11](#) for sensor locations.
- 5 Press: STOP to exit.

006 Paper Transport Clutch Test Sequence

- 1 Go to: 006
- 2 Press: READY to run the test. The first clutch engages, signaled by a continuous clicking sound. “3-0” appears on the display, corresponding to the upper pick-up roller clutch.
- 3 Press: READY to test the next clutch. Listen for the clicking sound as the next clutch engages. The number on the display changes to indicate the next clutch. The display codes and the clutch they represent are listed in [Table 5-3, “Clutch Test Displays”](#).

Table 5-3. Clutch Test Displays

Display	Indication
3-0	Upper pick-up roller clutch
3-1	Lower pick-up roller clutch
3-2	Upper feed roller clutch
3-3	Lower feed roller clutch
3-3	Paper timing roller clutch

- 4 Repeat Step 3 until you have tested all of the clutches.
- 5 Press: STOP to exit.

007 Counter Test

- 1 Open the front cover.
- 2 Go to: 007
- 3 Press: READY to run the test.
 - Confirm that the page counter advances by 1.
 - The test then exits automatically.

008 Jogging Motor Test

- 1 Go to: 008
- 2 Press: READY to run the test. The output tray jogs back and forth.
- 3 Confirm that a tone sounds each time the tray contacts the sensor at each side.

The codes in the following table indicate specific error conditions:

Table 5-4. Jogging Motor Test Error Displays

Display	Indication
081	Front tray sensor signal not received
082	Rear tray sensor signal not received
083	No signal received from either sensor
090	Close covers

- 4 Press: STOP to exit.

009 Photoconductor Test

- 1 Go to: 009
- 2 Press: READY to run the test. The main motor rotates the photoconductor belt.
- 3 Confirm that a tone sounds repeatedly, indicating that the photoconductor belt is rotating.

These codes may indicate specific error conditions:

Table 5-5. Photoconductor Error Test Displays

Display	Indication
030	Developer bias short detected
040	Photoconductor seam sensor not received or detected
041	Seam sensor (sender) short
042	Seam sensor (sender) open or the photoconductor is not installed
055	Erase lamp malfunction

- 4 Press: STOP to exit

010 Toner Supply Motor Test

- 1** Open the front and top covers.
- 2** Remove the photoconductor unit and the developer unit. Place the photoconductor unit in its protective packaging.
- 3** Insert the interlock by-pass tool in the front cover. Close the top cover.
- 4** Go to: 010
- 5** Press: READY to run the test. The toner supply motor runs continuously.
- 6** Observe the toner supply motor through the open developer unit cavity. Confirm that the motor is turning counterclockwise, accompanied by a “1” on the display.
- 7** Press STOP and READY alternately several times to verify the toner supply motor starts and stops. (This stops and restarts the test.)

These codes may indicate specific error conditions:

Table 5-6. Toner Supply Motor Test Error Displays

Display	Indication
4-0	You forgot to remove the developer unit
090	You forgot to insert the interlock by-pass tool

- 8** Press: STOP to exit.
- 9** Reinstall the developer unit and photoconductor unit.
- 10** Remove the interlock by-pass tool and close the front cover.

011 *Main Charger Test*

- 1** Remove the photoconductor unit and place it in its protective packaging. Close the top cover.
- 2** Go to: 011
- 3** Press: READY to run the test. The main charger turns on and off repeatedly.
- 4** Confirm that the display alternates between “0” and “1,” accompanied each time by a brief tone. The display indicates the following:

Table 5-7. Main Charger Test Displays

Display	Indication
0	Main charger off
1	Main charger on

These codes may indicate specific error conditions:

Table 5-8. Main Charger Test Error Displays

Display	Indication
041	Photoconductor seam sensor short
045	Main charger short
046	Main charger open
4-1	You forgot to remove the photoconductor

- 5** Press: STOP to exit.
- 6** Reinstall the photoconductor unit.

012 *Transfer Charger Test*

- 1** Remove the photoconductor unit and place it in its protective packaging. Close the top cover.
- 2** Go to: 012
- 3** Press: READY to run the test. The transfer charger turns on and off repeatedly.
- 4** Confirm that the display alternates between “0” and “1,” accompanied each time by a brief tone. The display indicates the following:

Table 5-9. Transfer Charger Test Displays

Display	Indication
0	Transfer charger off
1	Transfer charger on

These codes may indicate specific error conditions:

Table 5-10. Transfer Charger Test Error Displays

Display	Indication
041	Seam sensor (sender) short
050	Transfer charger short
051	Transfer charger open or not installed
4-1	You forgot to remove the photoconductor

- 5** Press: STOP to exit.
- 6** Reinstall the photoconductor unit.

(014 intentionally excluded)

013 *Erase Lamp Test*

- 1** Open the top cover and insert the interlock by-pass tool.
- 2** Remove the photoconductor unit and place it in its protective cover.
- 3** Select: 013
- 4** READY to run the test. The erase lamp turns on with all LEDs lighted.
- 5** Verify that all LEDs are illuminated and a number(s) appears on the display. The number is a readout from the A/D converter and does not affect the erase lamp test.

These codes may indicate specific error conditions:

Table 5-11. Erase Lamp Test Error Displays

Display	Indication
041	Seam sensor (sender) short
055	Erase lamp malfunction
4-1	You forgot to remove the photoconductor unit

- 6** Press: STOP to exit.
- 7** Reinstall the photoconductor unit.
- 8** Remove the interlock by-pass tool and close the top cover.

(014 intentionally excluded)

015 Negative Developer Bias Test

- 1** Open the top cover and insert the interlock by-pass tool.
- 2** Remove the photoconductor unit and place it in its protective packaging.
- 3** Go to: 015
- 4** Press: READY to run the test. The negative developer bias turns on and off repeatedly.
- 5** Confirm that the display alternates between “0” and “1,” accompanied each time by a brief tone. The display indicates the following:

Table 5-12. Negative Developer Bias Test Displays

Display	Indication
0	Negative developer bias off
1	Negative developer bias on

These codes may indicate specific error conditions:

Table 5-13. Negative Developer Bias Test Error Displays

Display	Indication
030	Developer bias short
041	Seam sensor (sender) short
090	You forgot to insert the interlock by-pass tool
4-1	You forgot to remove the photoconductor unit

- 6** Press: STOP to exit.
- 7** Reinstall the photoconductor unit.
- 8** Remove the interlock by-pass tool and close the top cover.

016 Duplex Feed Motor Test

- 1** Go to: 016
- 2** Press: READY to run the test. The duplex feed motor operates at full forward speed and “7-0” appears on the display.
- 3** Press: READY to advance to the next motor speed.
- 4** Listen for the following motor frequencies and check the code that displays as you move through the test sequence. The codes and their meaning are outlined in the chart below:

Table 5-14. Duplex Motor Feed Test Displays

Display	Indication
7-0	Full forward speed (high frequency)
7-1	Low forward speed (low frequency)
7-2	Full reverse speed (high frequency)
7-3	Half reverse speed (low frequency)

These codes may indicate specific error conditions:

Table 5-15. Duplex Motor Feed Test Error Displays

Display	Indication
069	Duplex is not installed.
090	Cover is open. Close cover

- 5** Press: STOP to exit.

017 Duplex Input Sensor Test Sequence

- 1 Go to: 017
- 2 Press: READY to run the test. The code for the first sensor (i.e., “0-0” or “0-1”) appears on the display, confirming that the sensor is working properly.

Note

No paper moves through the machine, so indications of “No paper at sensor location” are normal.

- 3 Press: READY to advance to the next sensor. The display changes, showing the code for the next sensor as outlined in the chart below.

Table 5-16. Duplex Input Sensor Test Displays

Sensor Description	Display
Paper sensor	0-0: No paper 0-1: Paper at sensor
Cover sensor	1-0: Cover closed 1-1: Cover open
Duplex tray sensor	2-0: No paper 2-1: Paper at sensor

- 4 To check a specific sensor, press READY repeatedly until the code on the display corresponds to the sensor you want to check, then manually activate the sensor. Confirm that the display changes when you activate the sensor.

These codes may indicate specific error conditions:

Table 5-17. Duplex Input Sensor Test Error Displays

Display	Indication
069	Duplex tray not installed
090	Cover is open. Close cover

- 5 Press: STOP to exit.

018 Duplex Clutch Test Sequence

- 1** Go to: 018
- 2** Press: READY to run the test. The first flipper engages, accompanied by a continuous clicking sound, and “7-0” appears on the display.
- 3** Press: READY to activate the next clutch or flipper. Listen for the clicking sound as it engages. The number on the display changes to indicate the next clutch or flipper. The display codes and the clutch or flipper they represent are listed in the following chart.

Table 5-18. Duplex Clutch Test Displays

Display	Indication
7-0	Duplex exit flipper
7-1	Duplex roller clutch A
7-2	Duplex re-entry flipper
7-3	Duplex roller C solenoid

- 4** To check a specific clutch or flipper, press READY repeatedly until the code on the display corresponds to the item you want to check. Manually activate the sensor. Confirm that the display changes when you activate the sensor.

These codes may indicate specific error conditions:

Table 5-19. Duplex Clutch Test Error Displays

Display	Indication
069	Duplex is not installed.
090	Cover is open. Close cover.

- 5** Press: STOP to exit.

019 Duplex Tray Paper-Guide Motor Test

- 1** Go to: 019
- 2** Press: READY to run the test.
- 3** Press: READY again. The paper guide in the duplex tray moves to and from its home position.
- 4** Confirm that the paper guide in the duplex tray moves back and forth each time you press READY.

These codes may indicate specific error conditions:

Table 5-20. Duplex Tray Paper Guide Motor Test Displays

Display	Indication
069	Duplex tray not installed
084	Duplex tray registration sensor not active
085	Duplex tray registration sensor active
090	Cover is open. Close cover.

- 5** Press: STOP to exit.

020 *High-Capacity Output Unit Test*

- 1 Go to: 020
- 2 Press: READY to run the test. The code for the first sensor (i.e., “0-0” or “0-1”) appears on the display, confirming that the sensor is working properly.

Note

No paper moves through the machine, so indications of “No paper at sensor location” are normal.

- 3 Press: READY to advance to the next sensor. The sensor’s code appears on the display; codes and their meaning are outlined in [Table 5-21, “High-Capacity Output Unit Test Displays”](#), below.

Table 5-21. High-Capacity Output Unit Test Displays

Sensor Description	Display
Installation sensor	0-0: Unit not installed 0-1: Unit installed
Paper exit sensor	1-0: No paper at sensor location 1-1: Paper at sensor
Paper full sensor	2-0: Paper not full 2-1: Paper full
Lower limit sensor	3-0: Tray stationary or moving down 3-1: Tray moving up

- 4 To check a specific sensor, press READY repeatedly until the code on the display corresponds to the sensor you want to check. Manually activate the sensor. Confirm that the display changes when you activate the sensor.
- 5 Press: STOP to exit.

021 *High-Capacity Input Unit Test*

- 1** Go to: 021
- 2** Press: READY to run the test. The display registers the paper size installed in the unit, as outlined on the chart (“1-0” will appear on the display if a high-capacity input unit is not installed.)
- 3** Verify the correct paper size, as follows:

Table 5-22. High-Capacity Input Unit Test Displays

Display	Indication
1-1	A4-size paper in use
1-3	Letter-size paper in use

- 4** Press: STOP to exit.

022 *Envelope Fuser Solenoid Test*

- 1** Remove the photoconductor unit and place it in its protective packaging.
- 2** Go to: 022
- 3** Press: READY to run the test. The main motor turns on and “0” appears on the display.
- 4** Press: READY again to activate the envelope fuser solenoid.
- 5** Listen for a clicking sound and confirm that the display alternates between “0” and when the solenoid is activated. If you hear no clicking, either the machine does not have an envelope fuser installed or the solenoid is not working properly.
- 6** Check for the following conditions:

Table 5-23. Envelope Fuser Solenoid Test Displays

Display	Indication
4-1	You forgot to remove the photoconductor unit.
090	Cover is open. Close cover.

- 7** Press: STOP to exit.

(023-100 intentionally excluded)

101 *EIGS/MIGS Board Test*

- 1 Select: 101
- 2 Press: READY to run the test.
- 3 If an error is found:
 - The error code appears.
 - Look up the code in [“Error Code/TAG Cross-Reference” on page 2-3](#) to determine which TAG to follow.
 - Power-on-reset to exit.
- 4 If no errors are found:
 - The test continues to run.
 - After about five minutes, press STOP to exit.

102 *EIGS/MIGS Board Test (Continuous Loop)*

- 1 Go to: 102
- 2 Press: READY to run the test.
- 3 If an error is found:
 - The error code is displayed for at least 1 second.
 - Look up the code in [“Error Code/TAG Cross-Reference” on page 2-3](#) to determine which TAG to follow.
 - If the test resumes, press STOP to exit; if the test does not resume, power-on-reset.
- 4 If no errors are found:
 - The test continues to loop.
 - Press STOP to exit.

103 **Communication Loop-back Test (Single Loop)**

- 1 Remove the interface cable from the printer.
- 2 Check to make sure the four DIP switches on the signal interface board have been pulled toward the printer's back cover. Close the back cover.
- 3 Install the RS-232C and RS-422 loop-back connectors, found in the tool kit mounted inside the right printer cover.

If you do not have loop-back connectors, jumper the connections as outlined in [Table 5-24, "RS-232 Loopback Connections"](#) and [Table 5-25, "RS-422 Loopback Connections"](#).

Table 5-24. RS-232 Loopback Connections

RS-232 Loopback Connection Reference		
pin 2	↔	pin 3
pin 4	↔	pin 5
pin 8	↔	pin 20
pin 17	↔	pin 24

Table 5-25. RS-422 Loopback Connections

RS-232 Loopback Connection Reference		
pin 2	↔	pin 4
pin 9	↔	pin 11
pin 7	↔	pin 6
pin 14	↔	pin 13

- 4 Go to: 103
- 5 Press: READY to run the test.
- 6 If an error code appears, check the ["Error Code/TAG Cross-Reference"](#) on page 2-3 to determine which TAG to follow.
- 7 If no error is detected, the test exits automatically.
- 8 Press: STOP to exit, if an error is detected. (For some errors, you may have to power-on-reset the printer.)
- 9 Remove the wrap connectors.
- 10 Reinstall the interface cable.

(106 intentionally excluded)

104 *Communication Loop-back Test (Continuous Loop)*

- 1** Remove the interface cable from the printer.
- 2** Make sure the DIP switches on the signal interface board have been pulled toward the printer's back cover. Close the back cover.
- 3** Install the RS-232C and RS-422 loop-back connectors, found in the tool kit mounted inside the right printer cover. If you do not have loop-back connectors, jumper the connections as outlined in [Table 5-24, "RS-232 Loopback Connections," on page 5-21](#) and [Table 5-25, "RS-422 Loopback Connections," on page 5-21](#).
- 4** Go to: 104
- 5** Press: READY to run the test.
- 6** If an error is detected, the error code is displayed briefly and the test continues. Note the error code and check the ["Error Code/TAG Cross-Reference" on page 2-3](#) to determine which TAG to follow.
- 7** If no errors are found, the test continues to loop. Allow the test to continue for at least one minute.
- 8** Press: STOP to exit. (For some errors, you may have to power-on-reset the printer.)
- 9** Remove the loop-back connectors.
- 10** Reinstall the interface cable.

105 *ELGS Program RAM Test (Continuous Loop)*

- 1** Go to: 105
- 2** Press: READY to run the test.
- 3** If an error code appears before the test has run for five minutes, look up the code in ["Error Code/TAG Cross-Reference" on page 2-3](#) to determine which TAG to follow.
- 4** Otherwise, a "201" may display after about five minutes, indicating that the test has run successfully.
- 5** Power-on-reset the printer to exit.

<p style="text-align: center;">Note</p>
--

<p style="text-align: center;">This test does not run on printers with MIGS boards.</p>
--

(106 intentionally excluded)

107 *EIGS/MIGS Bit Map Test (Single Loop)*

- 1 Go to: 107
- 2 Press: READY to run the test.
- 3 If no error is detected, the test exits automatically.
- 4 If an error code appears, look it up in [“Error Code/TAG Cross-Reference”](#) on page 2-3 to determine which TAG to follow.
- 5 Press: STOP to exit, if an error is reported.

108 *EIGS/MIGS Bit Map Test (Continuous Loop)*

- 1 Go to: 108
- 2 Press: READY to run the test.
- 3 If no errors are detected:
 - The test continues to loop.
 - Press STOP to exit.
- 4 If an error is found:
 - The error code displays briefly. If more than one error is detected, the error codes appear sequentially.
 - Look up the codes in the [“Error Code/TAG Cross-Reference”](#) on page 2-3 to determine which TAG to follow.
 - Power-on-reset to exit after codes display.

(109 intentionally excluded)

110 **Format Disk/Clear Error Log**

Caution

When using the 110 function of the self-diagnostic mode, any existing data on the specified disk is at risk!

- To format a disk, refer to the *Guide to Operations* manual.
- 5 To clear the error log, follow the procedure on clearing the log found in [“Clearing the Error Log”](#) on page 1-24.

Caution

If you access this function by mistake, do not proceed. Press STOP immediately to exit the utility.

111 **LED Printhead Test**

- 1 Open the top cover.
- 2 Remove the photoconductor unit and place it in its protective packaging.
- 3 Remove the developer station.
- 4 To help you identify the LEDs, place a white sheet of paper in the photoconductor cavity over the printhead’s fiber optics.
- 5 Go to: 111
- 6 Press: READY to run the test. The LED printhead turns on.
- 7 Verify that the LEDs cycle on and off from front to back.

These codes may indicate specific error conditions:

Table 5-26. LED Printhead Test Error Displays

Display	Indication
4-1	You forgot to remove the photoconductor unit
040	Seam sensor (sender) short

- 8 Press: STOP to exit.
- 9 Reinstall the photoconductor unit.

112 *Disk Drive Test (Single Loop With Stop on Error)*

This test reads data from the drive selected. It checks the seek function, cycle redundancy, parity, checksum, directory and allocation table integrity, and disk format.

- 1** Go to: 112
- 2** Insert a diskette or diskettes in the diskette drive or drives you wish to test.
- 3** Press: READY to run the test. "0" appears on the display indicating the A: drive.
- 4** Press: CANCEL to advance to the drive you wish to test.

Table 5-27. Disk Drive Test Drive Indications

Display	Indication
0	Floppy drive A:
1	Floppy drive B:
2	Hard drive C:

- 5** Press: READY to activate the drive.
- 6** If no errors are found, the test exits automatically.
- 7** If an error code appears, refer to the [Table 2-8, "IGS/Disk Drive Error Codes," on page 2-7](#), to determine which TAG to follow.
- 8** Press: STOP to exit, if errors are found.
- 9** To test another drive, repeat this procedure starting with Step 2.

113 *Disk Drive Test (Continuous Loop)*

This test reads data directly from the drive selected. It checks the seek function, cycle redundancy, parity, checksum, directory and allocation table integrity, and disk format.

- 1** Go to: 113
- 2** Insert a diskette or diskettes in the diskette drive or drives you wish to test.
- 3** Press: READY to run the test. "0" appears on the display indicating the A: drive.
- 4** Press: CANCEL to advance to the drive you wish to test. [Table 5-27, "Disk Drive Test Drive Indications," on page 5-25](#) lists the drive indications.
- 5** Press: READY to activate the drive.
- 6** If an error code appears, look it up in [Table 2-8, "IGS/Disk Drive Error Codes," on page 2-7](#), to determine which TAG to follow.
- 7** Power-on-reset to exit.

Chapter 6

Wiring Diagrams and Electrical Data

Contents

Wiring Diagrams and Electrical Data

Wiring Diagrams and Electrical Data	6-3
Connector (J/P) Index	6-4
Connector Locations	6-6
Connectors Inside the Front Cover	6-6
Connectors Inside the Left Cover	6-7
Connectors on the Duplex Cover	6-8
Connectors Inside the Right Cover	6-9
Connectors Inside the Top Cover	6-10
Connectors on the Back Cover	6-11
Connectors Inside the Back Cover (J/P2-14)	6-12
Connectors Inside the Back Cover (Continued) J/P18-6262	6-13
Connectors Inside the Back Cover (Continued) J/P 64-85	6-14
Connectors Inside the Back Cover (Continued) J/P 90-800	6-15
Voltage Isolation Diagrams	6-16
Ground System	6-21
Host Interface Reference	6-22
RS-232C Host Interface	6-22
Standard DCE to DTE RS-232C Cable	6-23
Special Considerations for RS-232 Host Interface Users	6-23
DTE Host to Printer (Option 1)	6-24
DTE Host to Printer (Option 2)	6-24
IBM PC/XT to Printer	6-25
IBM PC/AT to Printer	6-25
Macintosh Communication Port to Printer	6-26
RS-422 Host interface	6-26
Centronics Parallel Host Interface	6-27
IBM Parallel to Printer	6-28
Special Considerations for Centronics Parallel Interface Users	6-29
Circuit Board Settings	6-30
Signal Interface Board Settings	6-30
PCL Board Settings	6-31
Printhead Circuit Board Settings	6-31

Wiring Diagrams and Electrical Data

This section provides a reference guide for all information related to the electrical system of the printer, including:

- An index, arranged by connector number, to the connector's location in the printer and on the simplex and duplex schematics, which are found in this chapter.

Note

Connectors are referred to by J/P (jack/plug) numbers throughout this manual. Use the J/P number when looking up the connector in the index, schematics, and illustration.

- Complete connection diagram showing plugs, connectors, and wiring.
- Connector locations and illustrations.
- Voltage isolation diagrams.
- Host interface signal definitions and DIP switch settings.

Connector (J/P) Index

Connector	Page	Schematic Location
J/P 2	6-12	simplex/duplex F4
J/P 3	6-12	simplex/duplex F4
J/P 4	6-12	simplex/duplex E6
J/P 5	6-10	simplex/duplex E5
J/P 6	6-12	simplex/duplex E7
J/P 7	6-12	simplex/duplex D8
J/P 8	6-12	simplex/duplex D7
J/P 9	6-12	simplex/duplex C4
J/P 10	6-12	simplex/duplex C4
J/P 11	6-12	simplex/duplex B4
J/P 12	6-12	simplex/duplex B4
J/P 13	6-12	simplex/duplex B3
J/P 14	6-12	simplex/duplex C3
J/P 15	6-9	simplex/duplex D11
J/P 18	6-13	simplex/duplex B3
J/P 19	6-13	simplex/duplex C3
J/P 20	6-13	simplex/duplex C3
J/P 21	6-13	simplex/duplex B3
J/P 22	6-9, 6-13	simplex/duplex C3
J/P 22-1	6-8	duplex C2
J/P 23	6-13	simplex/duplex A7
J/P 24	6-13	simplex/duplex B7
J/P 25	6-13	simplex/duplex C4
J/P 26	6-13	simplex/duplex B6
J/P 27	6-13	simplex/duplex C6
J/P 30	6-13	simplex/duplex B6
J/P 31	6-11	simplex/duplex B8
J/P 32	6-11	simplex/duplex B8
J/P 33	6-11	simplex/duplex B8
J/P 36	6-11	duplex C8
J/P 37	6-11	simplex/duplex C8
J/P 40	6-11	simplex/duplex C8
J/P 41	6-11	simplex/duplex C8
J/P 42	6-6	simplex/duplex B9
J/P 43	6-7	simplex/duplex D10

Connector	Page	Schematic Location
J/P 44	6-13	simplex/duplex E5
J/P 45	6-7	simplex/duplex C10
J/P 46	6-7	simplex/duplex C9
J/P 47	6-7	simplex/duplex D10
J/P 48	6-7	simplex/duplex C10
J/P 49	6-9	simplex/duplex E9
J/P 50	6-13	simplex/duplex E9
J/P 51	6-9	simplex/duplex E9
J/P 52	6-13	simplex/duplex D9
J/P 53	6-9	simplex/duplex D10
J/P 54	6-9, 6-13	simplex/duplex E10
J/P 55	6-9	simplex/duplex D10
J/P 56	6-13	simplex/duplex B4
J/P 57	6-10	simplex/duplex E9
J/P 58	6-13	simplex/duplex E9
J/P 59	6-7	simplex/duplex E9
J/P 60	6-13	simplex/duplex E9
J/P 61	6-7	simplex/duplex E10
J/P 62	6-13	simplex/duplex E10
J/P 63	6-10	simplex/duplex C5
J/P 64	6-14	simplex/duplex C5
J/P 65	6-14	simplex/duplex F8
J/P 66	6-14	simplex/duplex F9
J/P 67	6-14	simplex/duplex F9
J/P 68	6-14	simplex/duplex F9
J/P 69	6-14	simplex/duplex F10
J/P 70	6-14	simplex/duplex E5
J/P 71	6-14	simplex/duplex A8
J/P 72	6-14	simplex/duplex A8
J/P 73	6-14	simplex/duplex A8
J/P 74	6-11	simplex/duplex B8
J/P 76	6-11	simplex/duplex B8
J/P 77	6-14	simplex/duplex C6
J/P 79	6-14	simplex/duplex C6
J/P 81	6-14	simplex/duplex A5

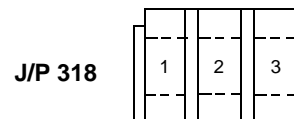
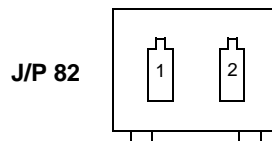
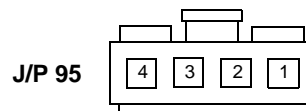
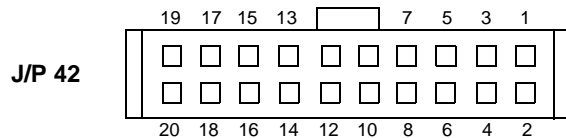
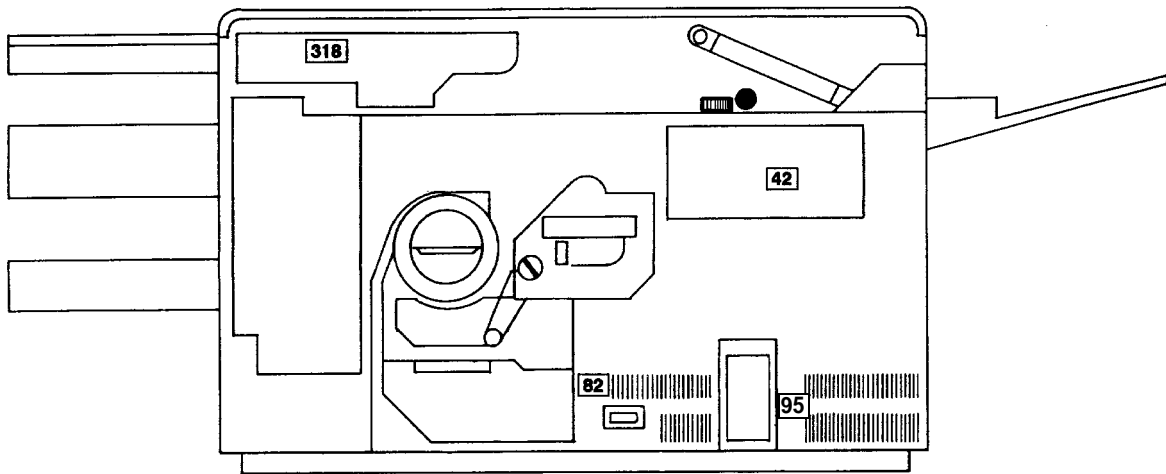
Connector	Page	Schematic Location
J/P 82	6-6	simplex/duplex A4
J/P 83	6-14	simplex/duplex E5
J/P 84	6-14	simplex/duplex E6
J/P 85	6-14	simplex/duplex B6
J/P 87	6-11	simplex/duplex C8
J/P 90	6-15	simplex/duplex B9
J/P 91	6-11	simplex/duplex C8
J/P 94	6-15	simplex/duplex B8
J/P 95	6-6	simplex/duplex C3
J/P 96	6-15	simplex/duplex C5
J/P 100	6-15	simplex/duplex D4
J/P 101	6-15	simplex/duplex D3
J/P 102	6-15	simplex/duplex C4
J/P 119	6-7	simplex/duplex C9
J/P 120	6-7	simplex/duplex C9
J/P 121	6-15	simplex/duplex B6
J/P 122	6-15	simplex/duplex B6
J/P 124	6-15	simplex/duplex B6
J/P 127	6-7	simplex/duplex C9
J/P 128	6-7	simplex/duplex C9
J/P 131	6-10	simplex/duplex E6
J/P 132	6-10	simplex/duplex E6
J/P 139	6-15	simplex/duplex B6
J/P 140	6-15	simplex/duplex B6
J/P 143	6-15	simplex/duplex B6
J/P 251	6-15	simplex/duplex B5
J/P 252	6-15	simplex/duplex B5
J/P 255	6-15	simplex/duplex A5
J/P 305	6-10	duplex E3
J/P 306	6-8	duplex E2
J/P 307	6-8	duplex E3
J/P 308	6-8	duplex E2
J/P 309	6-8	duplex E2
J/P 310	6-10	duplex F3
J/P 311	6-10	duplex F3
J/P 312	6-10	duplex F3
J/P 313	6-8	duplex F2
J/P 314	6-8	duplex E2

Connector	Page	Schematic Location
J/P 315	6-8	duplex E2
J/P 316	6-8	duplex E2
J/P 317	6-9	duplex D2
J/P 318	6-6	duplex F1
J/P 319	6-8	duplex F2
J/P 320	6-10	duplex G2
J/P 321	6-10	duplex G2
J/P 322	6-10	duplex F2
J/P 323	6-15	duplex D3
J/P 324	6-15	duplex E3
J/P 330	6-15	simplex/duplex E8
J/P 331	6-15	duplex D3
J/P 333	6-15	simplex/duplex A8, simplex/duplex D2
J/P 500	6-15	simplex/duplex A8
J/P 800	6-15	simplex/duplex E5

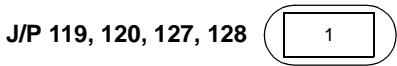
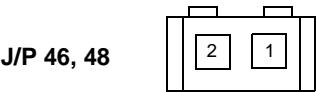
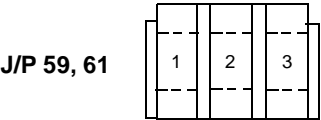
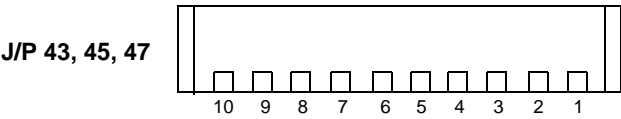
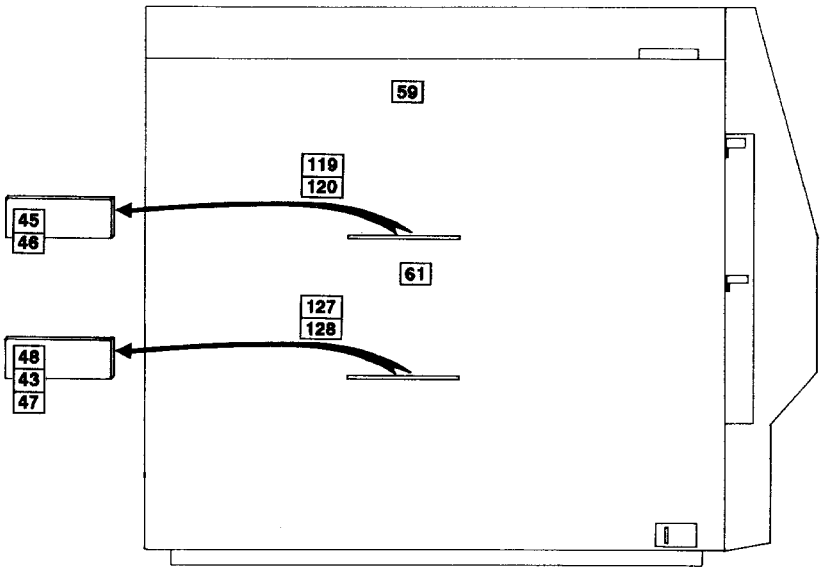
Connector Locations

The illustrations that follow show the relative location of all accessible connectors in the printer, and illustrate the connector (except for a few instances in which the connector is so simple that an illustration is unnecessary). For the connector's schematic location, refer to the chart on the preceding pages.

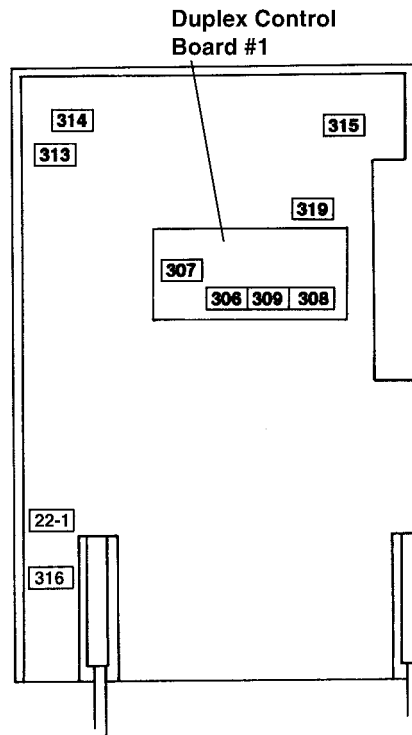
Connectors Inside the Front Cover



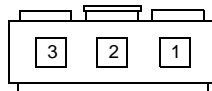
Connectors Inside the Left Cover



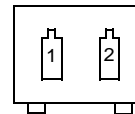
Connectors on the Duplex Cover



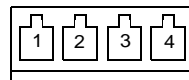
J/P 22-1



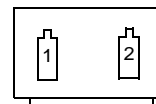
J/P 314



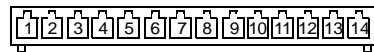
J/P 306



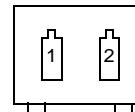
J/P 315



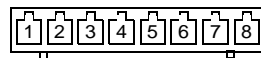
J/P 307



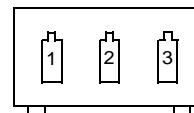
J/P 316



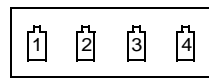
J/P 308



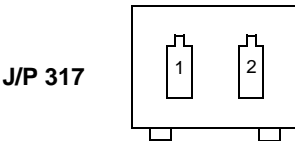
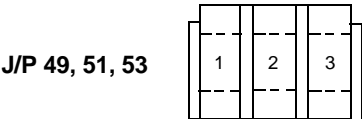
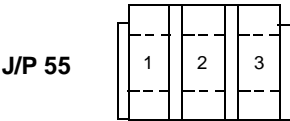
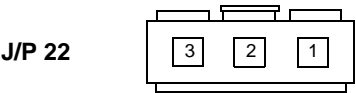
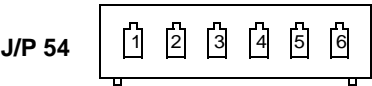
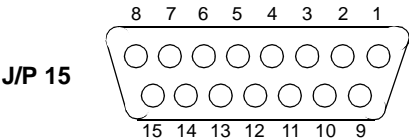
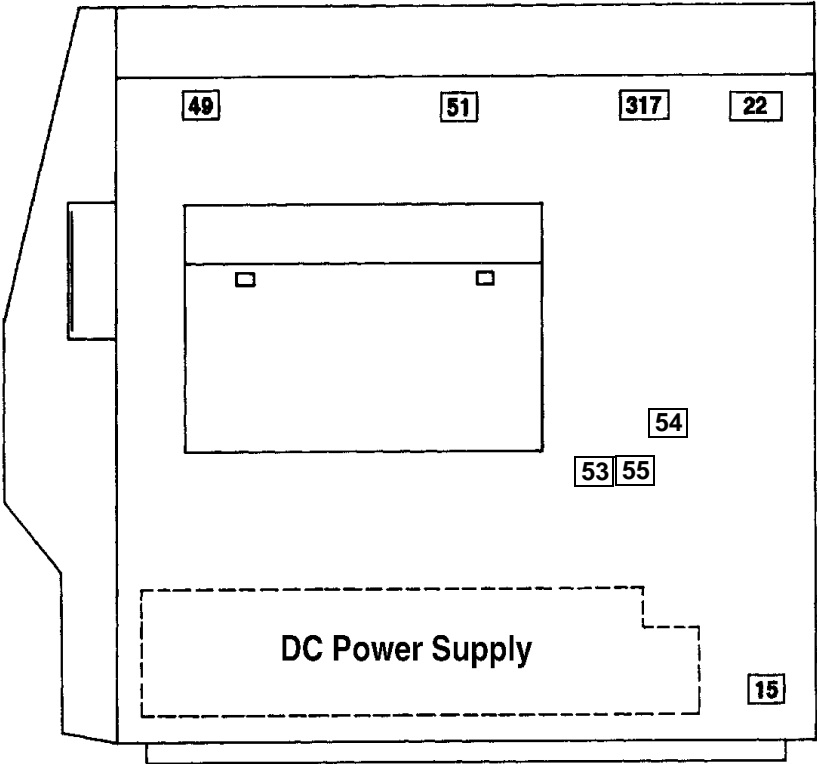
J/P 319



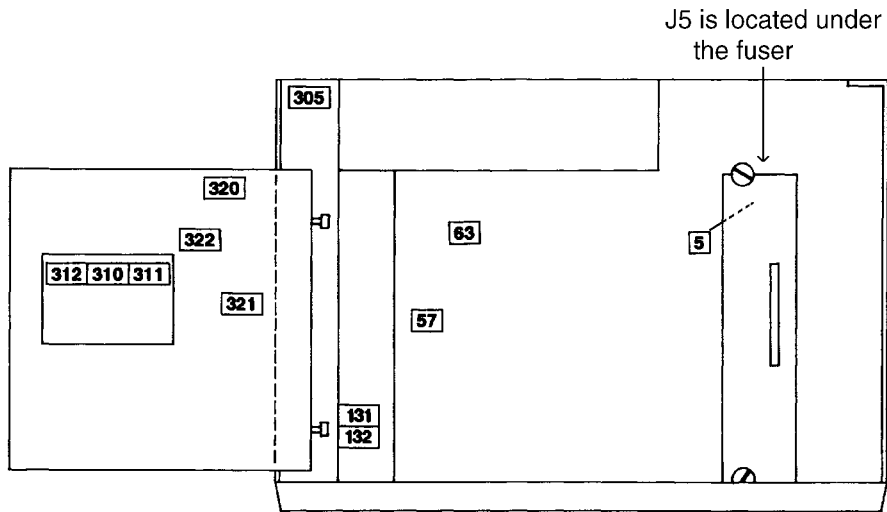
J/P 313



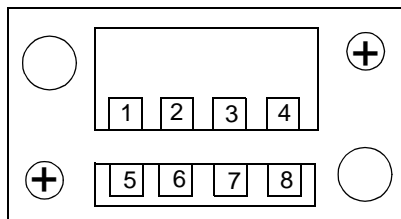
Connectors Inside the Right Cover



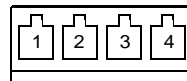
Connectors Inside the Top Cover



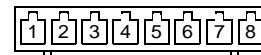
J/P 5



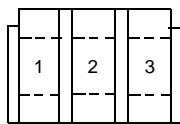
J/P 310



J/P 311



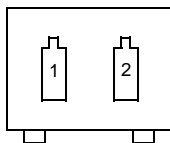
J/P 57



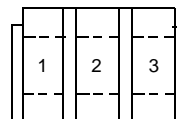
J/P 312



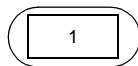
J/P 63



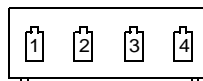
J/P 320



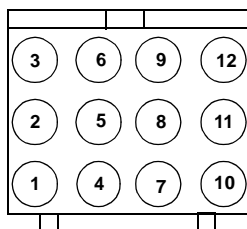
J/P 131-132



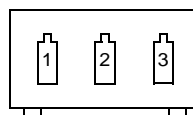
J/P 321



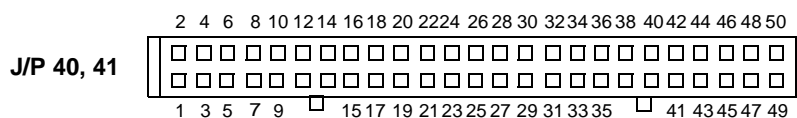
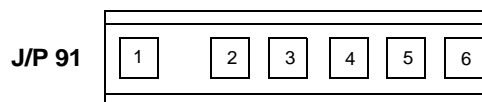
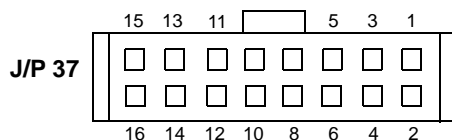
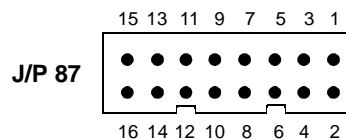
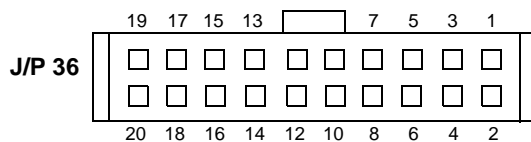
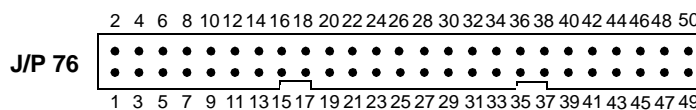
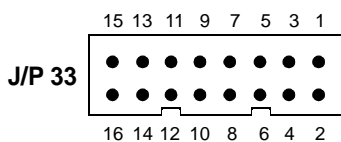
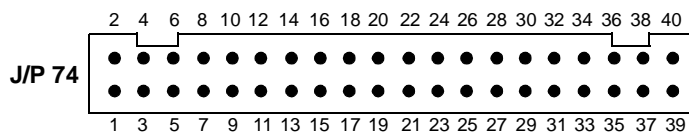
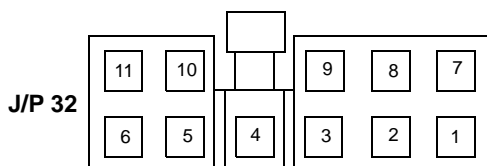
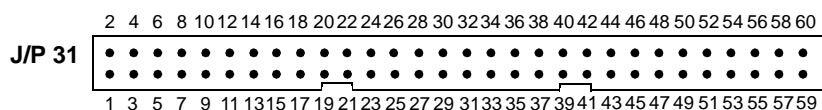
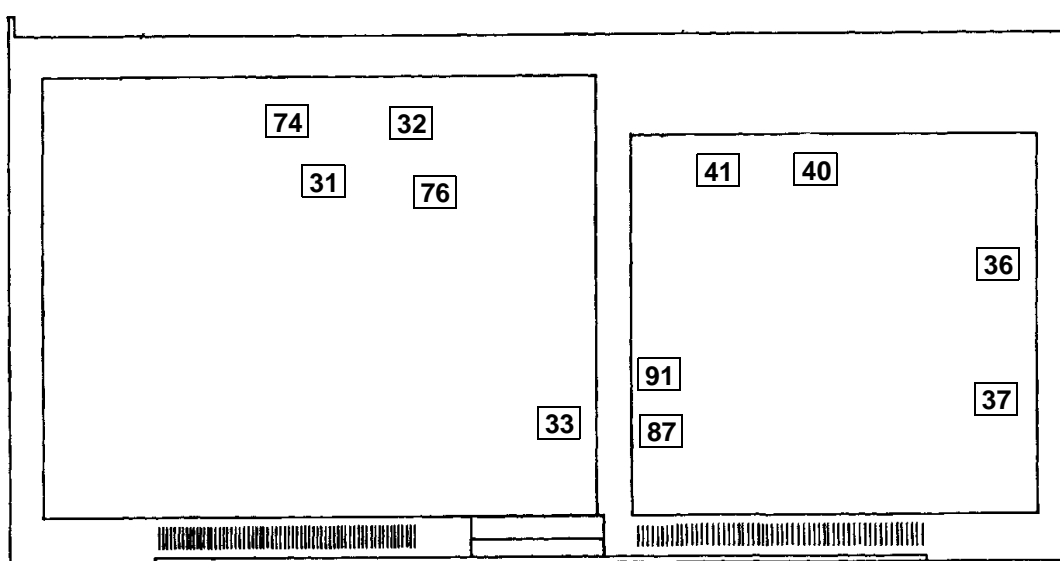
J/P 305



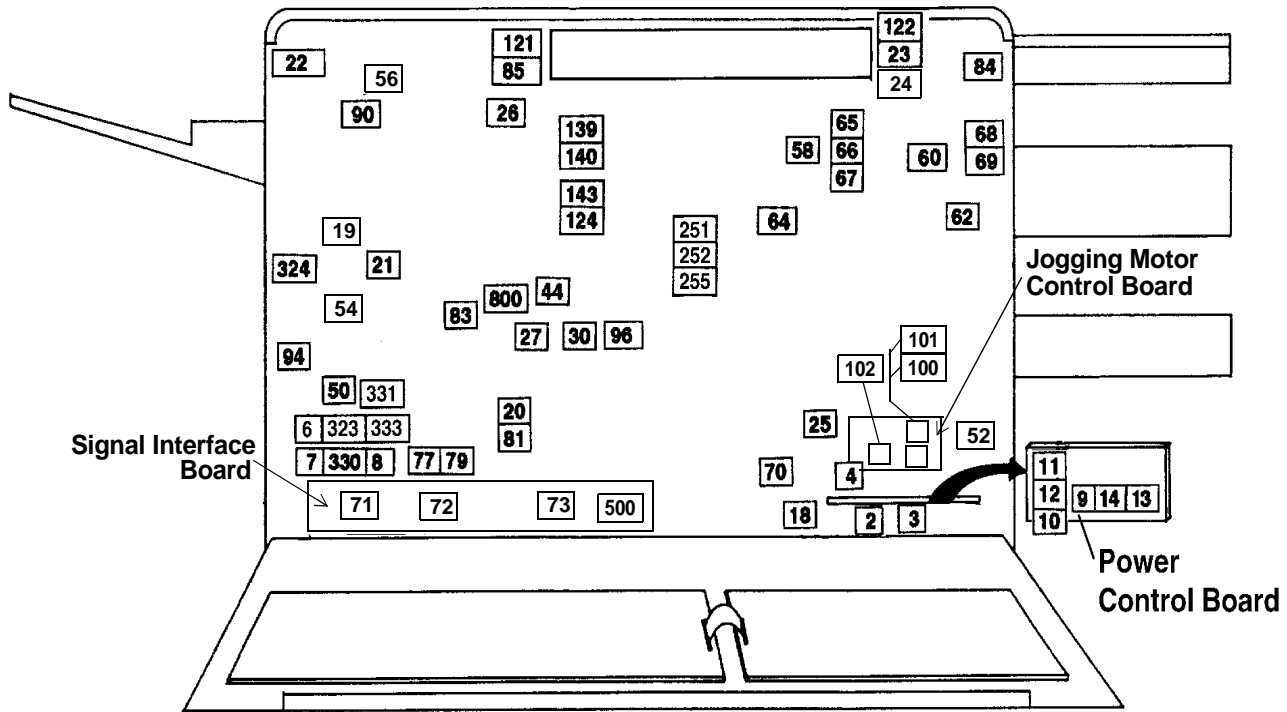
J/P 322



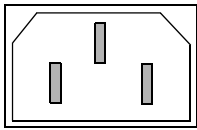
Connectors on the Back Cover



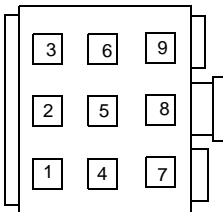
Connectors Inside the Back Cover (J/P2-14)



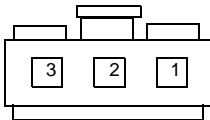
J/P 2, 3



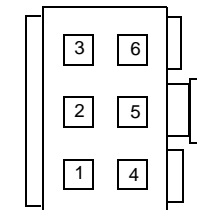
J/P 4



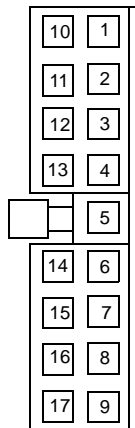
J/P 6



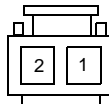
J/P 7



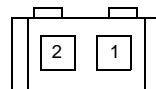
J/P 8



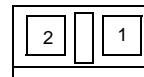
J/P 9



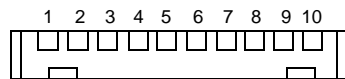
J/P 10



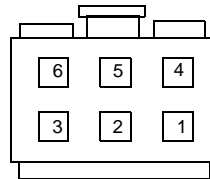
J/P 11



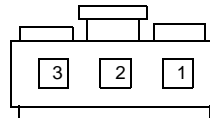
J/P 12



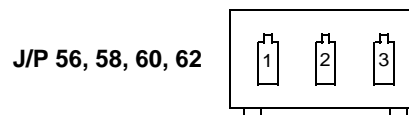
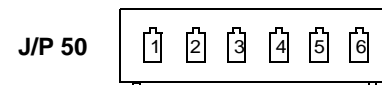
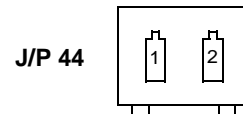
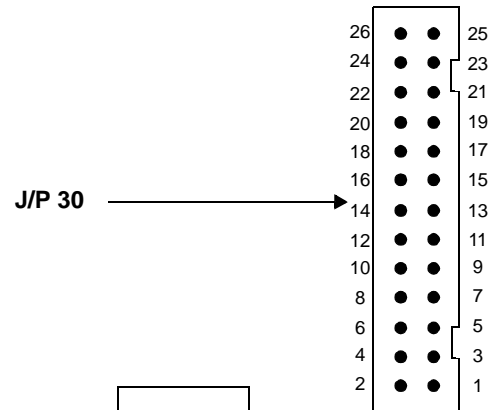
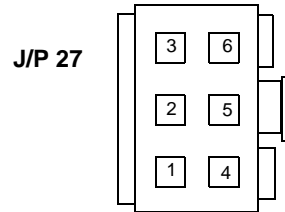
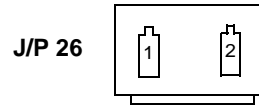
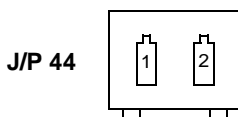
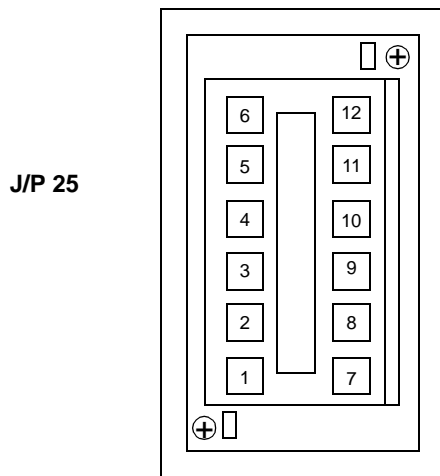
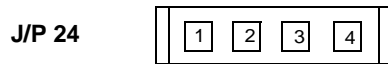
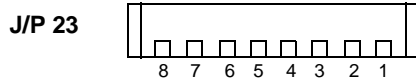
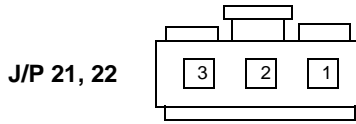
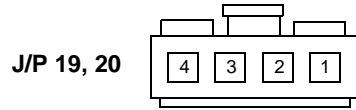
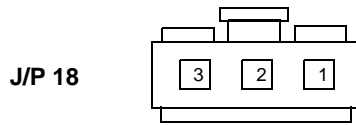
J/P 13



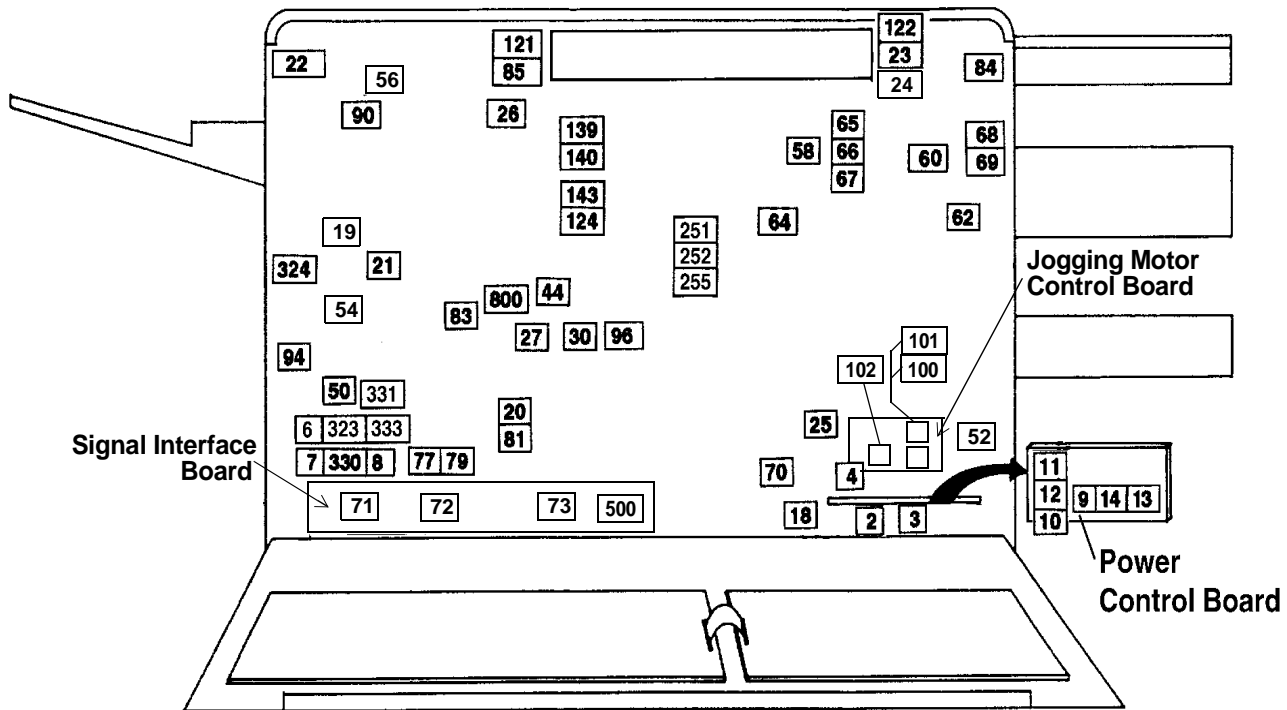
J/P 14



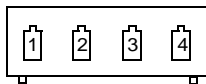
Connectors Inside the Back Cover (Continued) J/P18-62



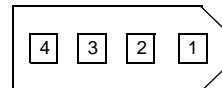
Connectors Inside the Back Cover (Continued) J/P 64-85



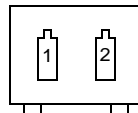
J/P 64



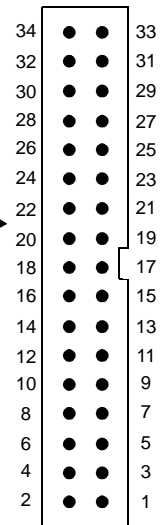
J/P 77



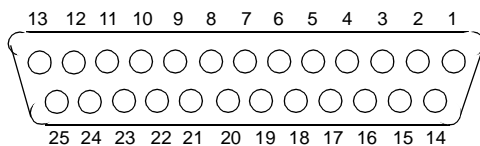
J/P 65, 66, 67, 68, 69, 70



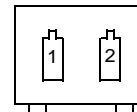
J/P 79



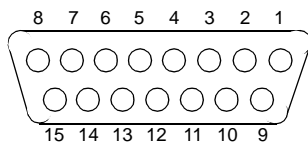
J/P 71
(RS-232C)



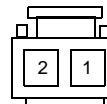
J/P 81, 83



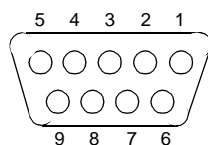
J/P 72
(RS-422)



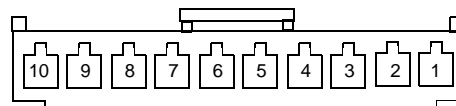
J/P 84



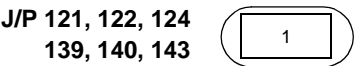
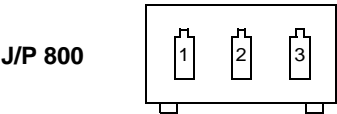
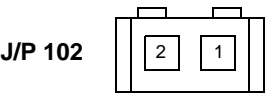
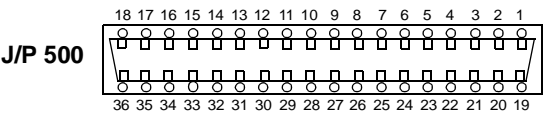
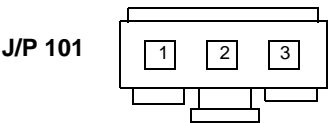
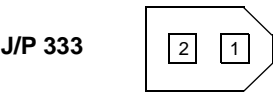
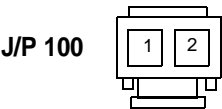
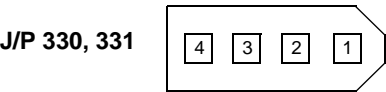
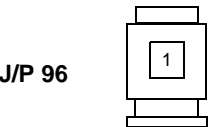
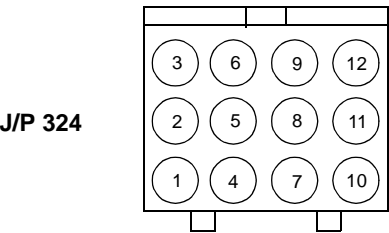
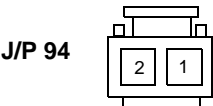
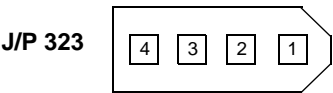
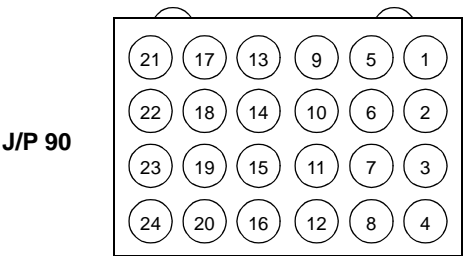
J/P 73
(DC)



J/P 85



Connectors Inside the Back Cover (Continued) J/P 90-800



J/P 251, 252, 255 not illustrated

Voltage Isolation Diagrams

Use the following voltage isolation diagrams to locate the presence or loss of proper DC potentials within the printer. Simplex circuit are shown first, followed by duplex circuits.

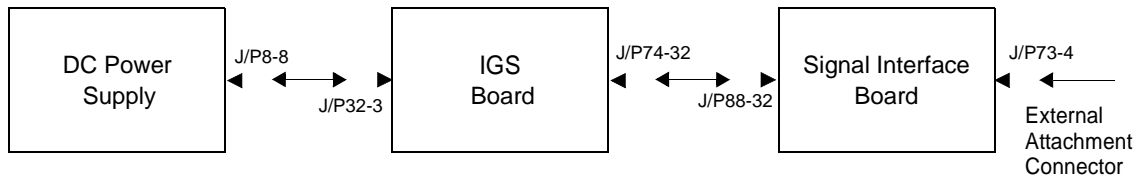


Figure 6-1. (Simplex) -12 Vdc Circuits

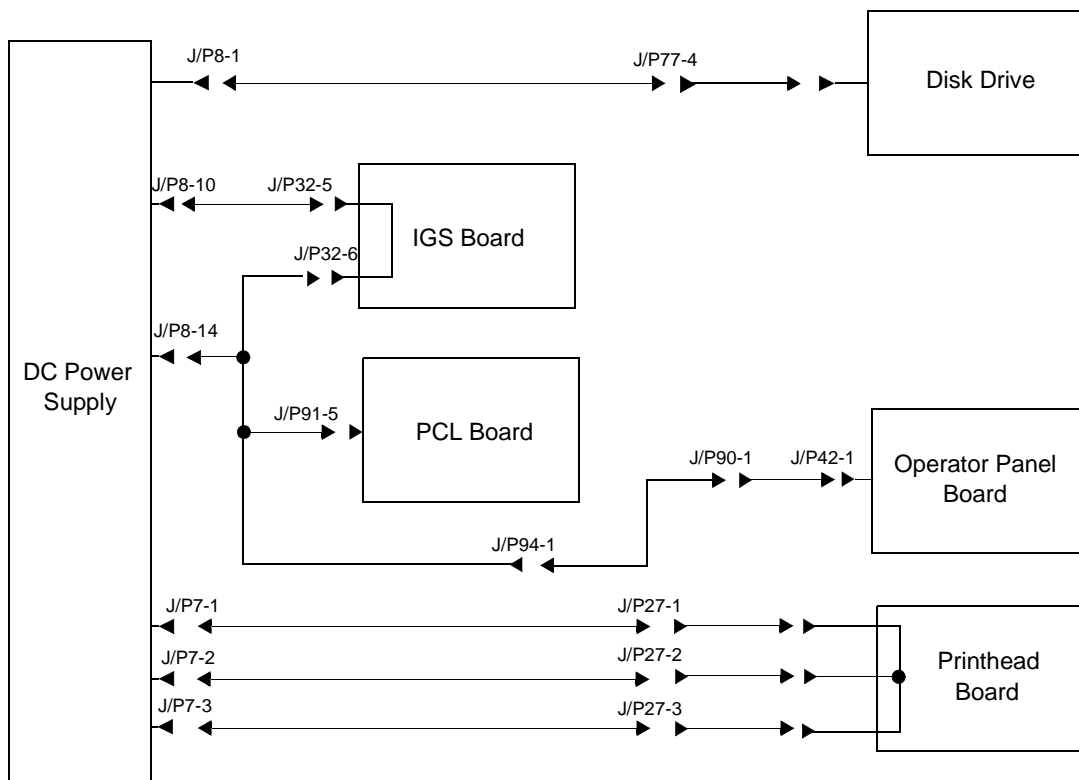


Figure 6-2. (Simplex) +5 Vdc Circuit

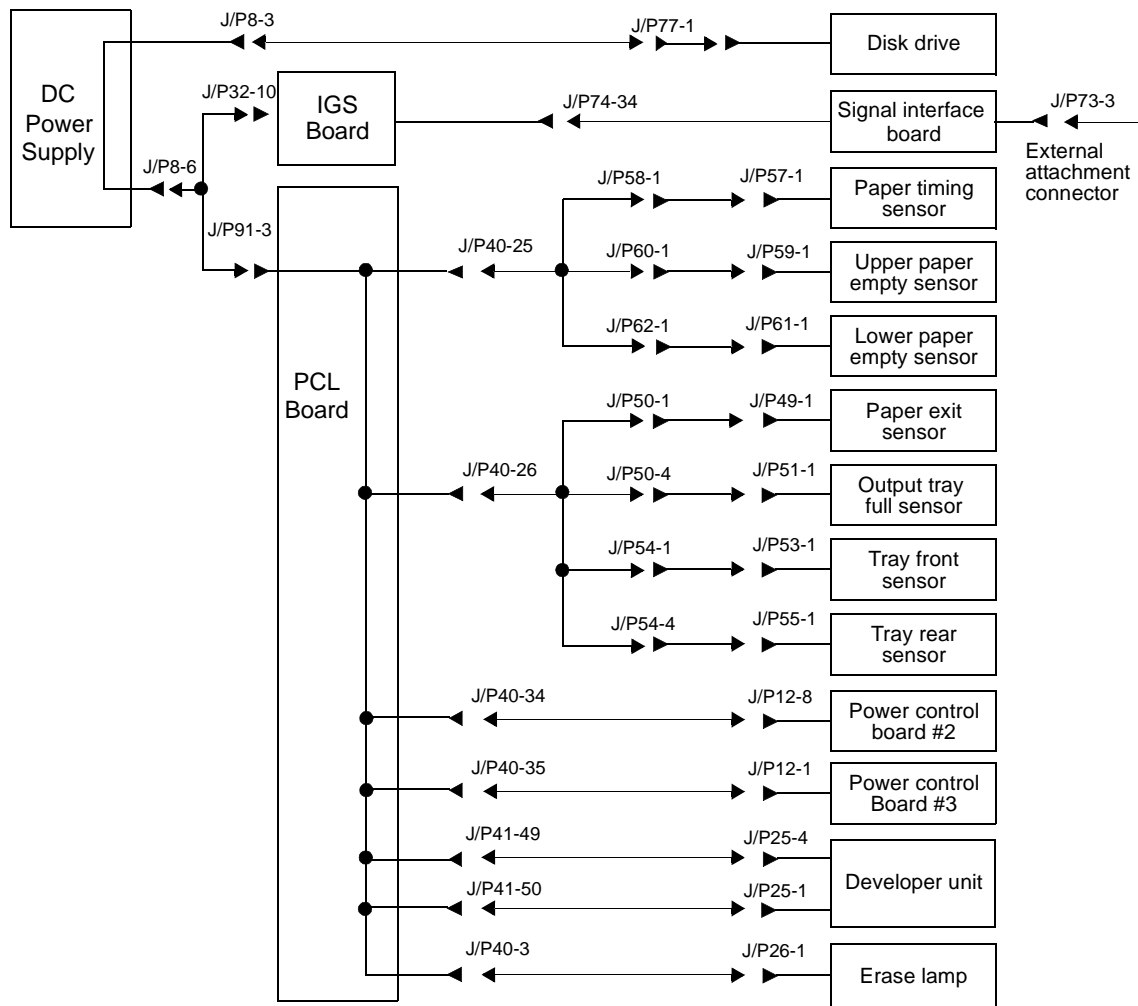


Figure 6-3. (Simplex) +12 Vdc Circuits

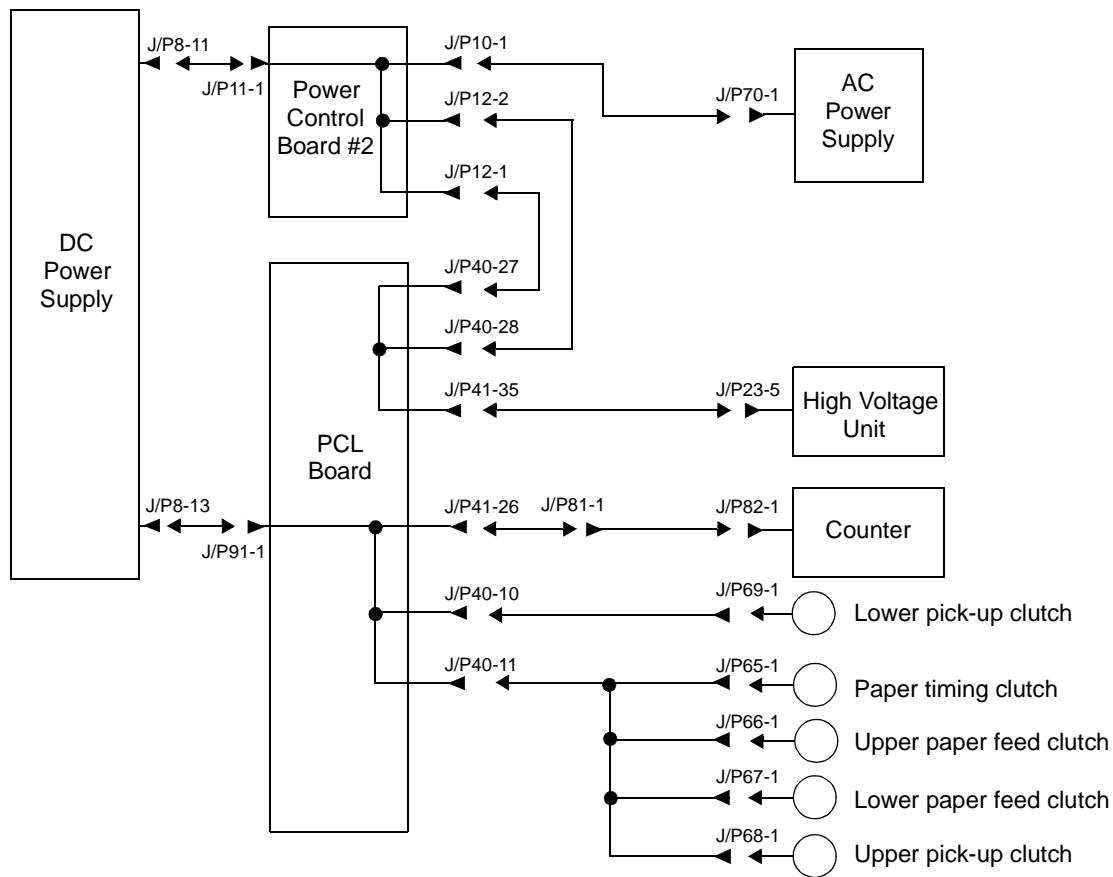


Figure 6-4. (Simplex) +24 Vdc Circuits

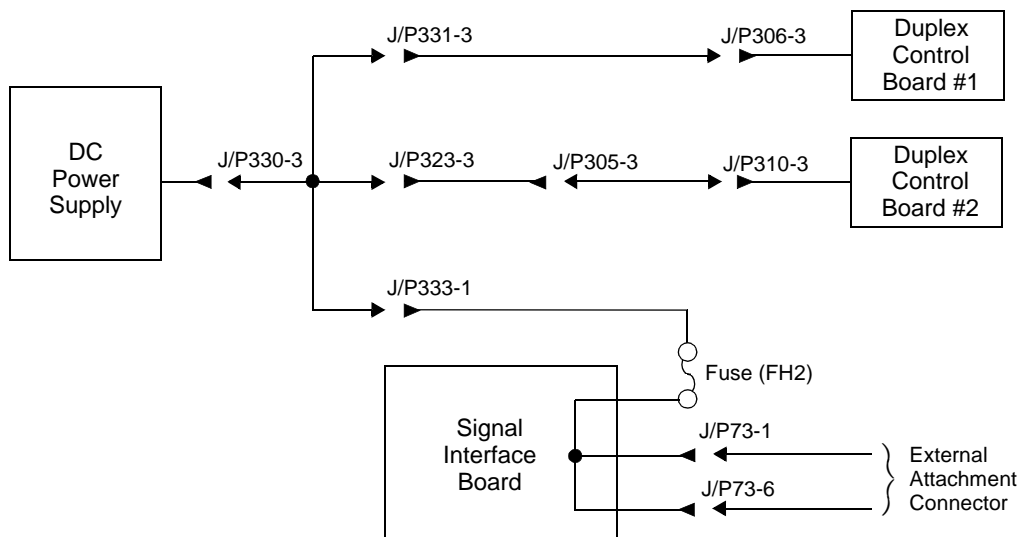


Figure 6-5. (Duplex) +5 Vdc Circuit

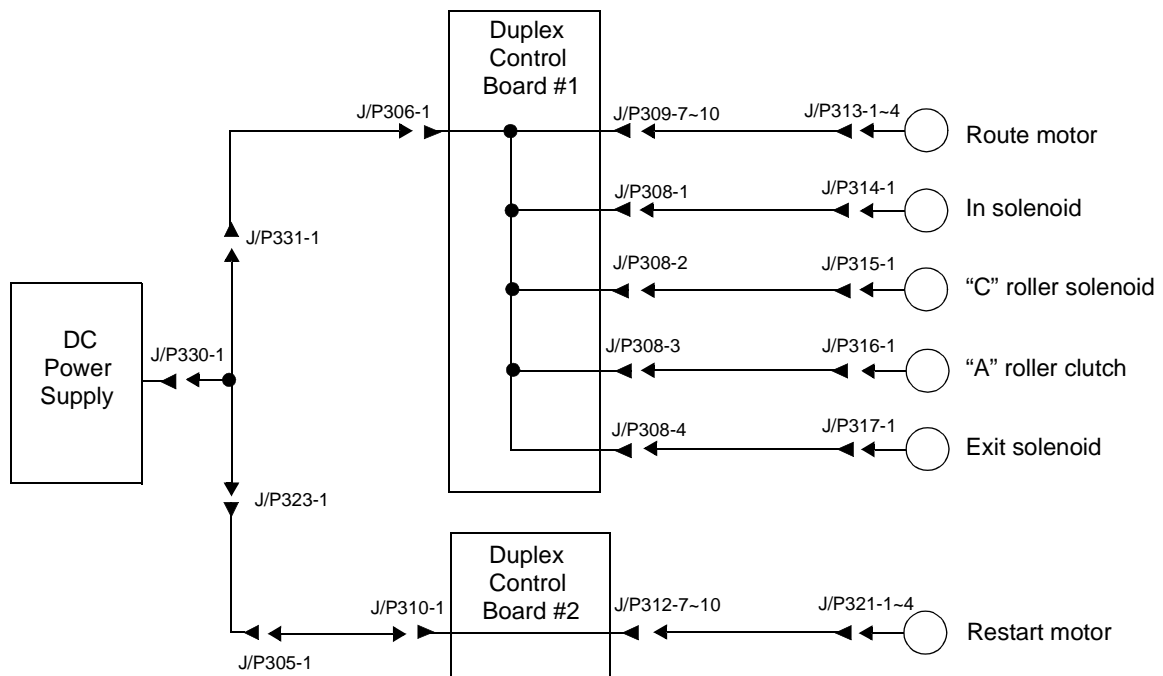


Figure 6-6. (Duplex) +24 Vdc Circuits

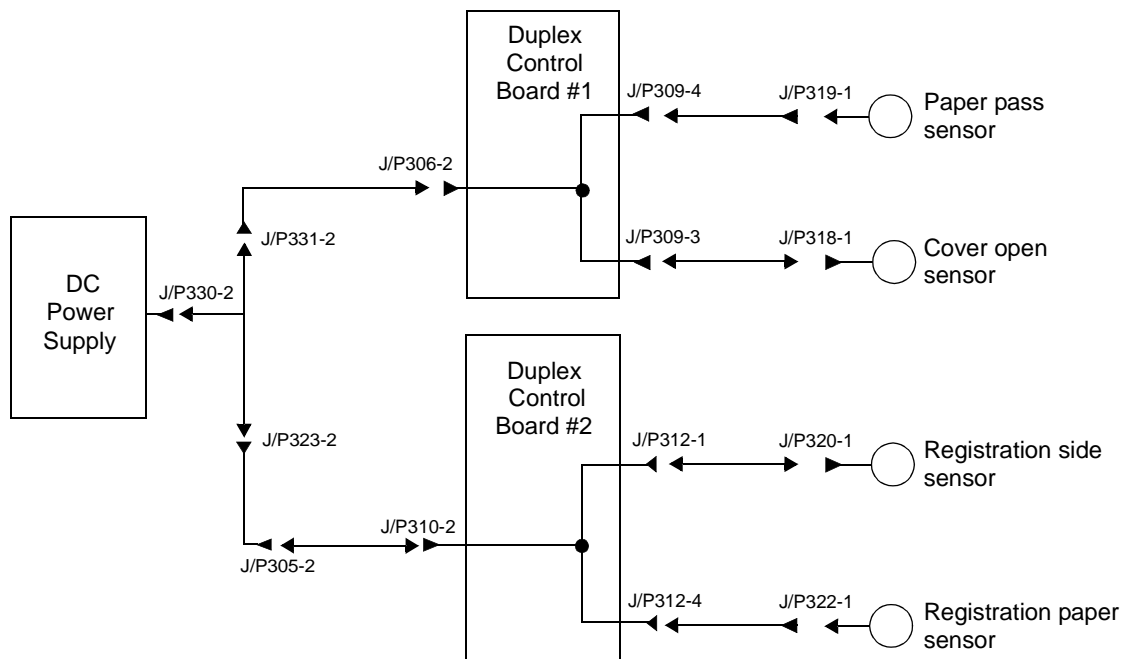
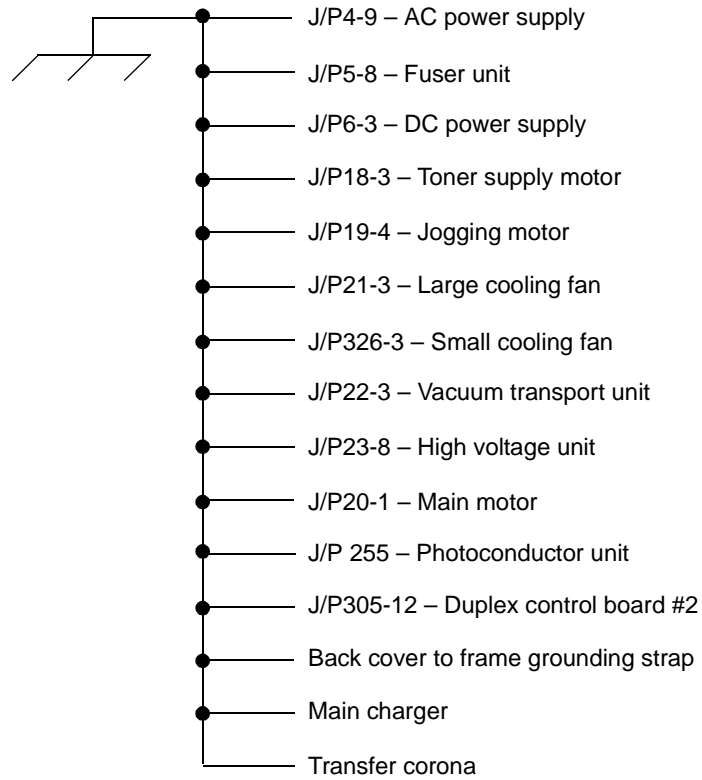


Figure 6-7. (Duplex) +12 Vdc Circuits

Ground System



Host Interface Reference

Standard printers support three host interfaces: RS-232C, RS-422, and Centronics Parallel. User-level information about the installation, configuration, and use of these interfaces is included in the printer's *Guide to Operations*.

RS-232C Host Interface

A printer is standard data terminal equipment (DTE), designed specifically for a direct connection to a standard data communication equipment (DCE) host. The standard signal definitions for DTE to DCE equipment are outlined in the table that follows.

Table 6-1. RS-232C DCE to DTE Signal Definitions

Pin	Signal Name	Function
1	FG	Frame or chassis ground
2	TD	Transmitted data
3	RD	Received data
4	RST	Request to send
5	CTS	Clear to send
6	DSR	Data set ready
7	SG	Signal ground
8	DCD	Data carrier detect
9		Positive DC test voltage
10		Negative DC test voltage (unassigned)
11	(S)DCD	Secondary data carrier detect
12	(S)CTS	Secondary clear to send
13	(S)CTS	Secondary clear to send
14	(S)TD	Secondary transmitted data
15	TC	Transmitter clock
16	(S)RD	Secondary received data
17	RC	Receiver clock
18	RDC	Receiver debit clock
19	(S)RTS	Secondary receive to send
20	DTR	Data terminal ready
21	SQ	Signal quality detect
22	RI	Ring indicator
23	DRS	Data rate select
24	(TC)	External transmitter clock
25	BSY	Busy

Standard DCE to DTE RS-232C Cable

The standard DCE host to the printer (DTE) pin configuration follows..

Table 6-2. Standard DCE to DTE Signal Definition

Host Signal	DCE		DTE	Printer Signal
GND	1	←→	1	GND
GND	7	←→	7	GND
RI	22		22	RI
DTR	20	←→	20	DTR
DCD	8		8	DCD
DSR	6		6	DSR
RTS	4	←→	4	RTS
CTS	5	←→	5	CTS
TD	2	←→	2	TD
RD	3	←→	3	RD

Special Considerations for RS-232 Host Interface Users

If the READY light comes on and the ON-LINE light does not come on when you are installing the printer, one or more of the pin signals on the RS-232 cable may be incorrect. The host computer may be using a non-DCE RS-232C port. If so, you may have to modify your cable or purchase a new cable with the proper pin assignments. Several possible alternate RS-232C cable configurations follow.

DTE Host to Printer (Option 1)

Table 6-3. DTE Host to Printer Connector Wiring (Option 1)

Host Signal	DCE		DTE	Printer Signal
GND	1	←→	1	GND
GND	7	←→	7	GND
DTR	20		20	DTR
DCD	8	←	8	DCD
DSR	6	←	6	DSR
RTS	4	←	4	RTS
CTS	5	←	5	CTS
TD	2	←	2	TD
RD	3	←	3	RD

DTE Host to Printer (Option 2)

Table 6-4. DTE Host to Printer Connector Wiring (Option 2)

Host Signal	DCE		DTE	Printer Signal
GND	1	←→	1	GND
GND	7	←→	7	GND
DTR	20		20	DTR
DCD	8	←	8	DCD
DSR	6	←	6	DSR
RTS	4	←	4	RTS
CTS	5	←	5	CTS
TD	2	←	2	TD
RD	3	←	3	RD

IBM PC/XT to Printer

Normally, the IBM PC/XT comes with a parallel interface for the printer with a 25-pin female connector. To run RS-232, you must install a serial board, which will have a male connector.

Table 6-5. IBM PC/XT to Printer Connector Wiring

PC/XT Signal	DTE		DTE	Printer Signal
-----	1	←-----→	1	FG
TD	2	←-----→	2	TD
RD	3	←-----→	3	RD
RTS	4		4	RTS
CTS	5	←-----→	5	CTS
DSR	6	←-----→	6	DSR
SG	7	←-----→	7	SG
DCD	8	←-----→	8	DCD
DTR	20	←-----→	20	DTR

IBM PC/AT to Printer

Normally, the IBM AT comes with a 9-pin serial connector.

Table 6-6. IBM PC/AT to Printer Connector Wiring

PC/AT Signal	DCE		DTE	Printer Signal
DCD	1	←-----→	1	FG
RD	2	←-----→	2	TD
TD	3	←-----→	3	RD
DTR	4	←-----→	4	RTS
SG	5	←-----→	5	CTS
DSR	6	←-----→	6	-----
RTS	7	←-----→	7	SG
CTS	8	←-----→	8	DCD
RI	9	←-----→	20	DTR

Macintosh Communication Port to Printer

Normally, the Macintosh comes with a 9-pin male connector.

Table 6-7. Macintosh Communication Port to Printer Connector Wiring

Macintosh Signal	DCE		DTE	Printer Signal
FG	1	↔	1	FG
	2		2	TD
SG	3	↗	3	RD
	4	↘	4	RTS
TD	5	↖	5	CTS
	6		6	-----
DSR	7	↗	7	SG
	8	↘	8	DCD
RD	9	↖	20	DTR

RS-422 Host interface

The RS-422 host interface uses the signal definitions defined below. A shielded cable is required with the shield connected on one end only, preferably at the printer end.

Table 6-8. RS-422 Host Interface Connector Wiring

Host Signal				Printer Signal
GND	1	↔	1	FG
SG	8	↔	8	SG
TD	2	↔	2	TD
	9	↔	9	
RD	4	↔	4	RD
	11	↔	11	
DCD	5	↔	5	DCD
	12	↔	12	
ST2	6	↔	6	ST2
	13	↔	13	
ST1	7	↔	7	ST1
	14	↔	14	
DTR	3	↔	3	DTR
	10	↔	10	

Centronics Parallel Host Interface

The Centronics Parallel host interface uses the signal definitions defined below.

Table 6-9. Centronics Parallel Signal Definitions

Pin	Signal Name	Function
1	DS	Data strobe (active low)
2	DB0	Data bit 0
3	DB1	Data bit 1
4	DB2	Data bit 2
5	DB3	Data bit 3
6	DB4	Data bit 4
7	DB5	Data bit 5
8	DB6	Data bit 6
9	DB7	Data bit 7
10	ACK	Acknowledge (active low)
11	BSY	Busy (active high)
12	PE	Paper empty (active high)
13	SEL	Select (active high)
14	AF	Auto feed
15		Not used
16	SG	Signal ground
17	FG	Frame or chassis ground
18	PLH	Peripheral logic high
19 to 30		Signal ground
31	IP	INIT
32	ERR	Error (active low)
33 to 35		Not used
36	SI	Select input

IBM Parallel to Printer

Table 6-10. IBM Parallel to Printer Connector Wiring

Host Signal			Printer Signal	
DS	1	↔	1	DS
DB0	2	↔	2	DB0
DB1	3	↔	3	DB1
DB2	4	↔	4	DB2
DB3	5	↔	5	DB3
DB4	6	↔	6	DB4
DB5	7	↔	7	DB5
DB6	8	↔	8	DB6
DB7	9	↔	9	DB7
ACK	10	↔	10	ACK
BSY	11	↔	11	BSY
PE	12	↔	12	PE
SEL	13	↔	13	SEL
AF	14	↔	14	AF
ERR	15	↔	32	ERR
IP	6	↔	31	IP
SI	17	↔	36	SI
GND	18	↔	33	GND
GND	19	↔	19	GND
GND	20	↔	21	GND
GND	21	↔	23	GND
GND	22	↔	25	GND
GND	23	↔	27	GND
GND	24	↔	29	GND
GND	25	↔	30	GND

Special Considerations for Centronics Parallel Interface Users

For DOS host computers, add the following line to the AUTOEXEC.BAT file:

```
MODE PRN,,P
```

To edit the AUTOEXEC.BAT file, use any text editor or the EDLIN facility of DOS. If you do not know how to edit this file, refer to the reference manual that came with the DOS software.

Circuit Board Settings

Several of the circuit boards in the printer have jumpers and/or DIP switches used to control the functionality of the board. These settings are described the following section.

Signal Interface Board Settings

The signal interface board has both jumpers and DIP switches used to control host interface interactions.

In general, the four jumpers on the signal interface board should remain as set at the factory. The jumpers control the following:

Table 6-11. Signal Interface Board Jumper Settings

Jumper	Direction	Description
JP1	b-c a-b	Baud rate crystal oscillator on IGS board 3.6854 MHz Baud rate crystal oscillator on IGS board 7.3728 MHz
JP2	d-e e-f	Unsolicited status reports enabled after power-on-reset Unsolicited status reports disabled after power-on-reset
JP3	g-h No jumper	ERR (pin 32) error line output enabled ERR (pin 32) error line output disabled
JP4	i-j j-k	PE (pin 12) out of paper line enabled PE (pin 12) out of paper line disabled

The four DIP switches on the signal interface board should be changed based on the host interface being used.

For an RS-232C host interface: the DIP switches may be set in either direction; they have no effect on an RS-232C interface.

For an RS-422 host interface: set all four DIP switches to ON by pushing them toward the exterior of the printer, as illustrated.

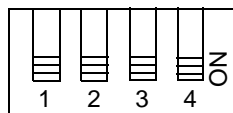


Figure 6-8. RS-422 Host Interface DIP Settings

For a Centronics Parallel Host Interface: set all four DIP switches to OFF by pushing them toward the interior of the printer, as illustrated.

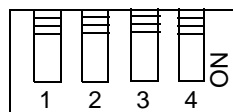


Figure 6-9. Centronics Parallel Host Interface DIP Settings

PCL Board Settings

The PCL board uses DIP switches to control the registration of prints. Change these settings only if directed to do so when following TAG #807.

Printhead Circuit Board Settings

The printhead circuit board uses jumpers to match printhead characteristics to controller characteristics. Do not change these jumper settings; they should remain as set at the factory.

Removal/Replacement Procedures

Contents

Front Cover Removal	7-5
Back Cover Removal	7-6
Lower Back Cover Removal	7-7
Left Side Cover Removal	7-8
Right Side Cover Removal (Simplex)	7-9
Right Side Cover Removal (Duplex)	7-10
Vacuum Transport Unit Removal (Simplex)	7-11
Vacuum Transport Unit Removal (Duplex)	7-13
Top Cover Removal	7-14
Top Cover Support Removal	7-15
Top Cover Hinge Removal	7-16
Rear Duplex Cover Removal	7-17
Front Duplex Cover Removal	7-18
Operator Panel Removal	7-19
Counter Removal	7-20
IGS Board Removal	7-21
PCL Board Removal	7-22
Printhead Assembly Removal	7-23
Disk Drive Housing Removal	7-25
Cooling Fan Removal	7-26
Duplex Fan Removal	7-27
Toner Motor Removal	7-28
AC Power Supply Removal	7-29
DC Power Supply Removal	7-31
High Voltage Unit Removal	7-32
Photoconductor Seam Sensor Removal	7-33
Photoconductor Rear Guide Rail Removal	7-35
Signal Interface Board Removal	7-37
Power Control Board Removal	7-38
Jogging Motor Control Board Removal	7-39
Upper or Lower Paper Size Sensor Removal	7-40
Upper Cassette Mount Removal	7-41
Lower Cassette Mount Removal	7-45
Upper Paper Guide Removal	7-48
Upper Paper Guide Roller Removal	7-50
Lower Paper Guide Removal	7-51
Paper Timing Guide Removal	7-52
Cleaner Drive Belt Removal	7-54
Cleaner Drive Removal	7-55
Fuser Drive Belt Removal	7-56

Fuser Drive Removal	7-57
Paper Feed Drive Belt Removal	7-58
Paper Timing Roller Removal	7-59
Upper Feed Roller Removal	7-60
Lower Feed Roller Removal	7-61
Upper Pick-Up Roller Removal	7-62
Upper Pick-Up Roller Drive Removal	7-63
Lower Pick-Up Roller Removal	7-64
Lower Pick-Up Roller Drive Removal	7-65
Job Offset Assembly Removal	7-66
Exit Pinch Roller Removal	7-68
Upper Static Brush Removal	7-70
Lower Static Brush Removal	7-71
Exit Roller Assembly Removal	7-72
Exit Cover Removal (Simplex)	7-74
Exit Cover Removal (Duplex)	7-76
Paper Exit Sensor Removal	7-78
Paper Full Sensor Removal	7-79
Front Cover Interlock Switch Removal	7-80
Back Cover Interlock Switch Removal	7-81
Top Cover Interlock Switch Removal	7-82
Erase Lamp Removal	7-83
EP Cover Removal	7-84
Main Motor Removal	7-86
Main Gear Drive Removal	7-88
Duplex Control Board #1 Removal	7-89
Duplex Control Board #2 Removal	7-90
Duplex Tray Registration Motor Removal	7-91
Duplex Skew Correction Cable Removal	7-92
Upper Duplex Drive/Clutch Assembly Removal	7-94
Duplex Route Motor/Solenoid Assembly Removal	7-95
“A” Roller Removal	7-96
“B” Roller Removal	7-97
“C” Roller Removal	7-98
“C” Roller Solenoid Removal	7-99
Duplex Route Separator Removal	7-100
Duplex Paper Path Sensor Removal	7-102

Removal

This section includes step-by-step instructions for removing all field service replaceable parts in the printer. Each part is addressed under its own heading, as outlined on the preceding contents pages. Most of the procedures are applicable to both the simplex and duplex printer models. When the procedures differ between the two printers, the word simplex or duplex is included in parentheses.

Before You Begin

To remove a part, follow the instructions provided. To replace a part, follow the steps in reverse order unless otherwise noted. During reassembly, make sure to reconnect all connectors properly and seat gears and other moving parts properly.

Power Considerations

Before removing a part, make sure the printer is turned off and that the power cord is disconnected.

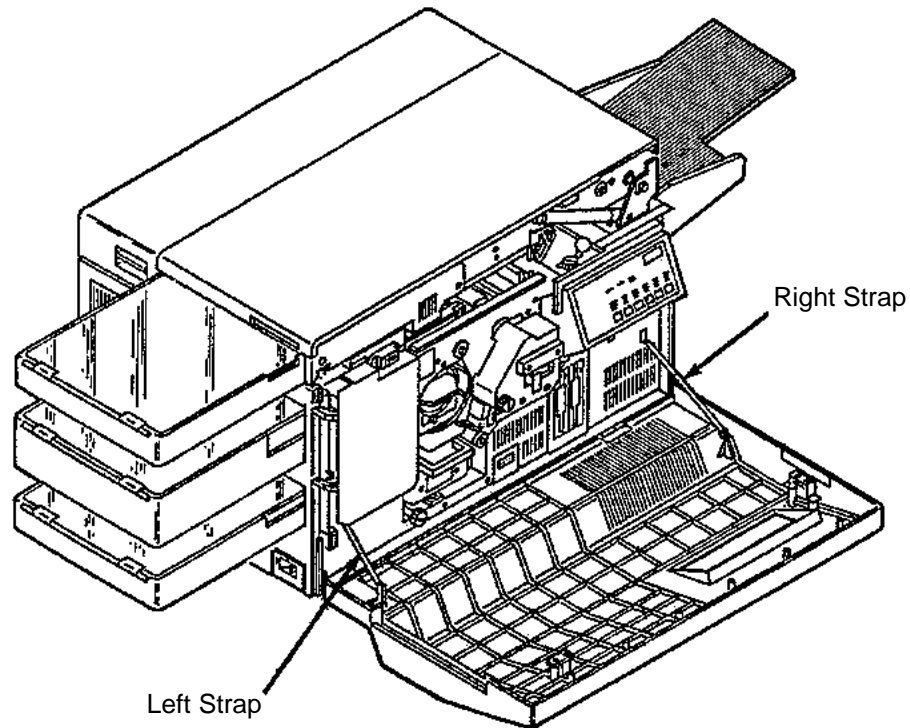
Photoconductor Removal

If it is necessary to remove the photoconductor unit as part of a removal procedure, make sure to place it in its protective packaging.

Front Cover Removal

To remove the front cover:

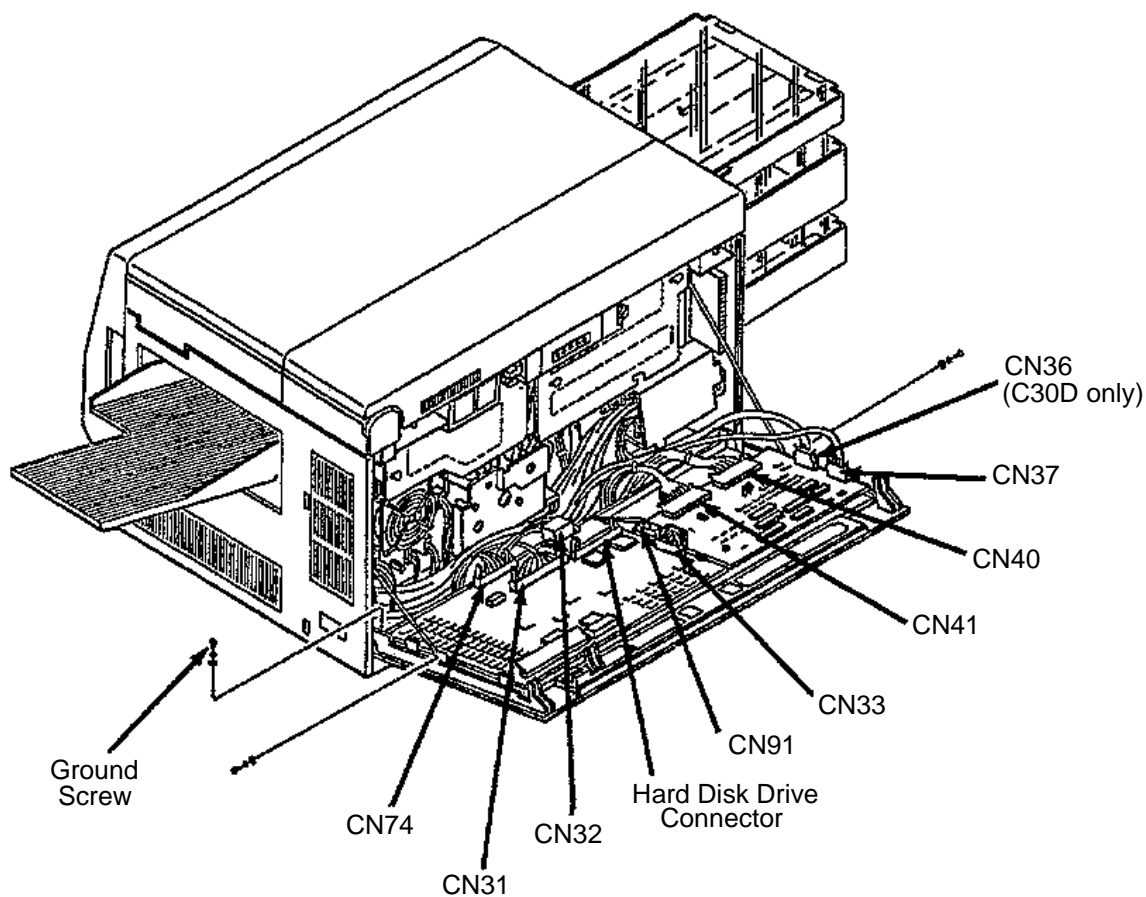
- 1 Open the front cover.
- 2 While holding the cover up halfway, unhook the strap from the right side.
- 3 **Duplex only:** Remove the strap from the left side.
- 4 Slide the front cover to the right off its hinges.



Back Cover Removal

To remove the back cover:

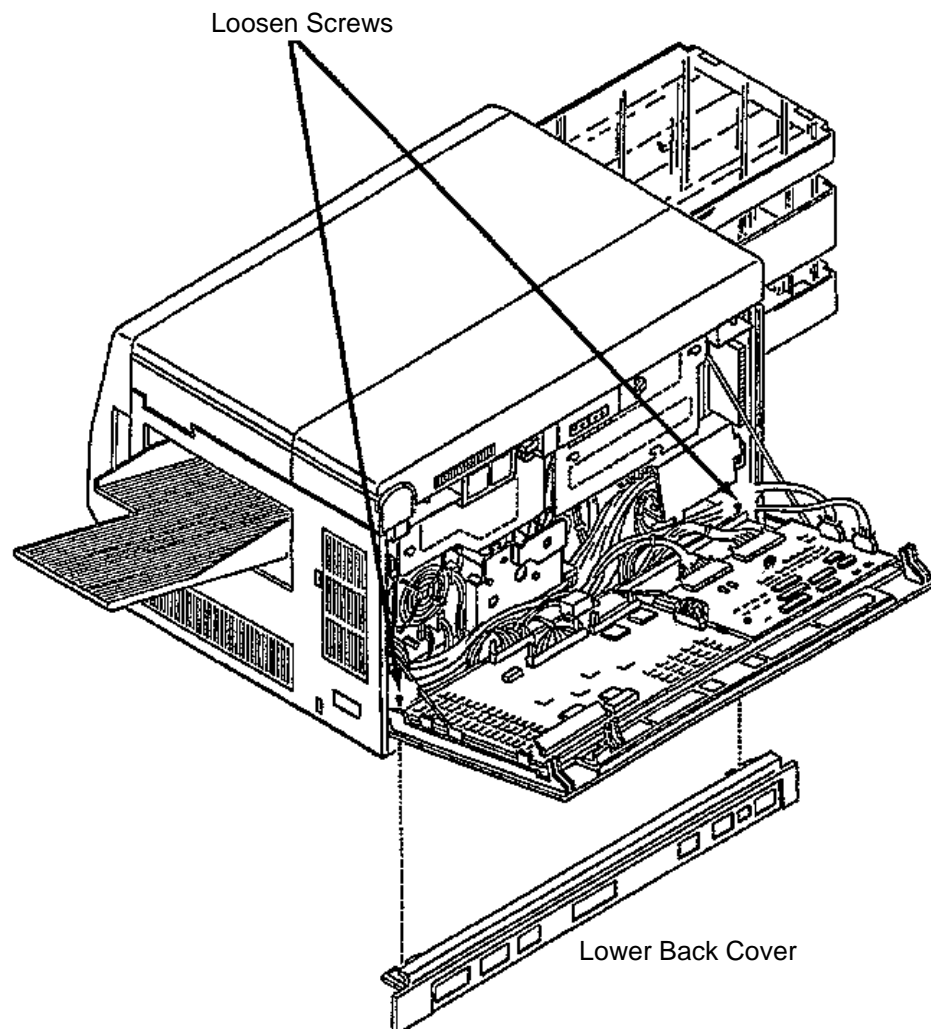
- 1 Remove all external cables and attachments.
- 2 Open the top and back covers.
- 3 Disconnect CN31, CN32, CN37, CN40, CN41, CN74, and CN91.
- 4 Duplex only: Disconnect CN36.
- 5 For the hard drive option, disconnect the drive's data cable.
- 6 Remove the ground screw from the back cover.
- 7 While supporting the back cover, remove the screw holding each strap.
- Caution:** hold the plastic strap to avoid throwing the screw as it comes loose.
- 8 Lift the back cover up and away from the printer.



Lower Back Cover Removal

To remove the lower back cover:

- 1 Disconnect all external cables and attachments.
- 2 Open the back cover.
- 3 Loosen the two screws holding the lower back cover in place.
- 4 Lift the back cover off its hinges.
- 5 While supporting the back cover, lift the lower back cover out and away from the printer.
- 6 Return the back cover to its hinges.



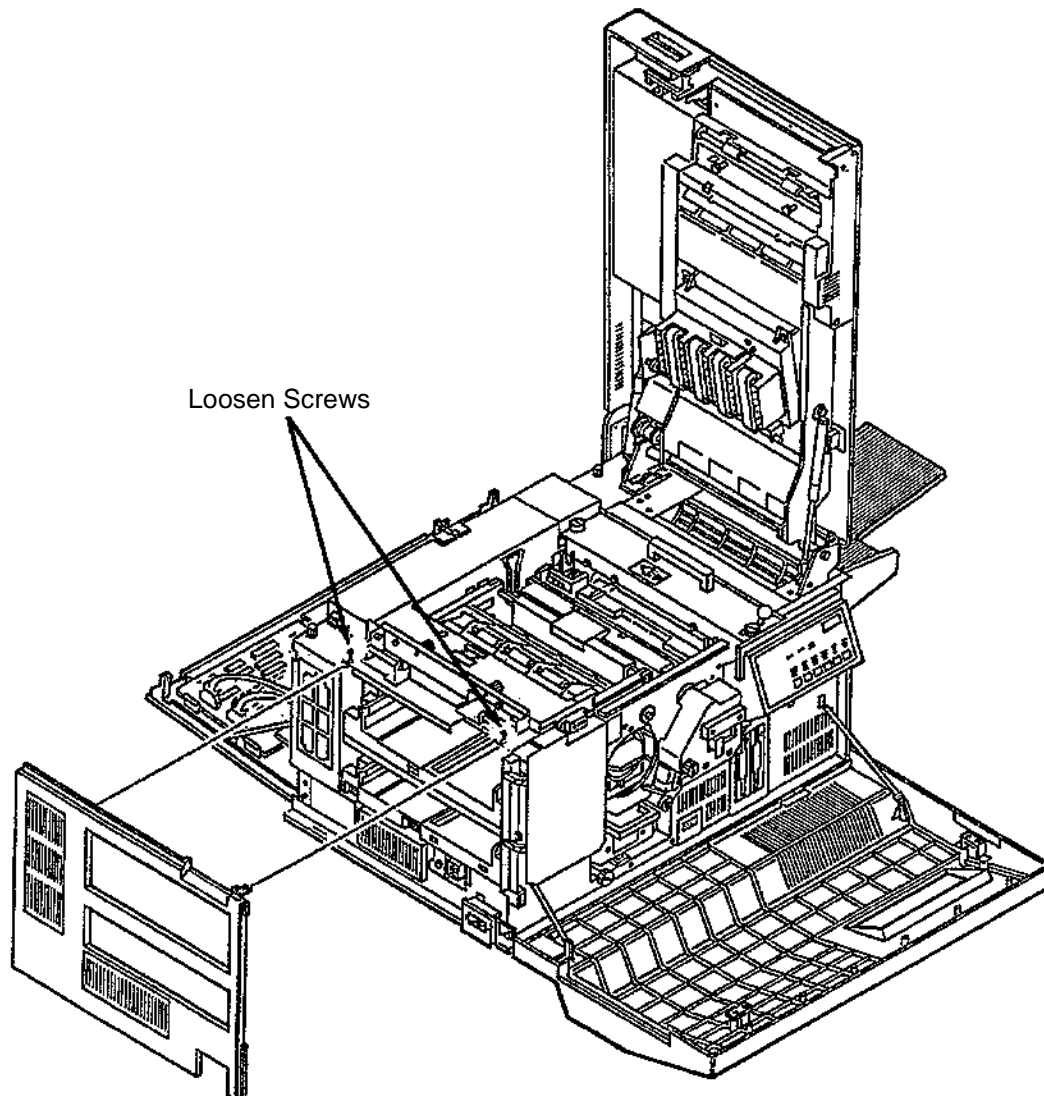
Left Side Cover Removal

To remove the left side cover:

- 1 Open the top, back, and front covers.
- 2 **Duplex only:** Remove the duplex tray by disconnecting P305 and loosening the two thumb screws.
- 3 Remove the upper and lower paper cassettes.
- 4 Loosen the two screws for the left side cover.
- 5 Lift the cover up and away from the printer.

Replacement Note:

When reinstalling, make sure the inside mounting tabs are properly positioned.



Right Side Cover Removal (Simplex)

Note

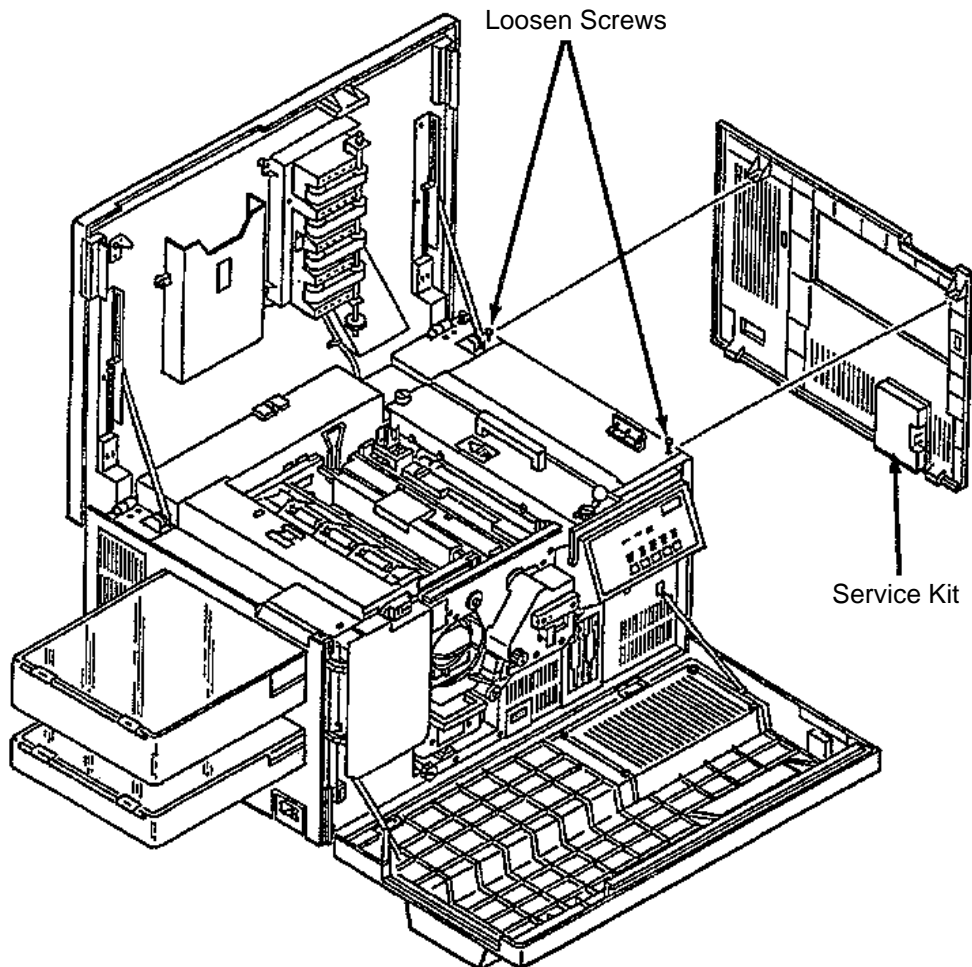
The service kit is attached inside the right side cover.

To remove the right side cover:

- 1 Remove the paper output tray.
- 2 Open the top and front covers.
- 3 Loosen the two screws holding the right side cover.
- 4 Pull the cover out and away from the printer.

Replacement Note:

When reinstalling, make sure the inside mounting tabs are properly positioned.



Right Side Cover Removal (Duplex)

Note

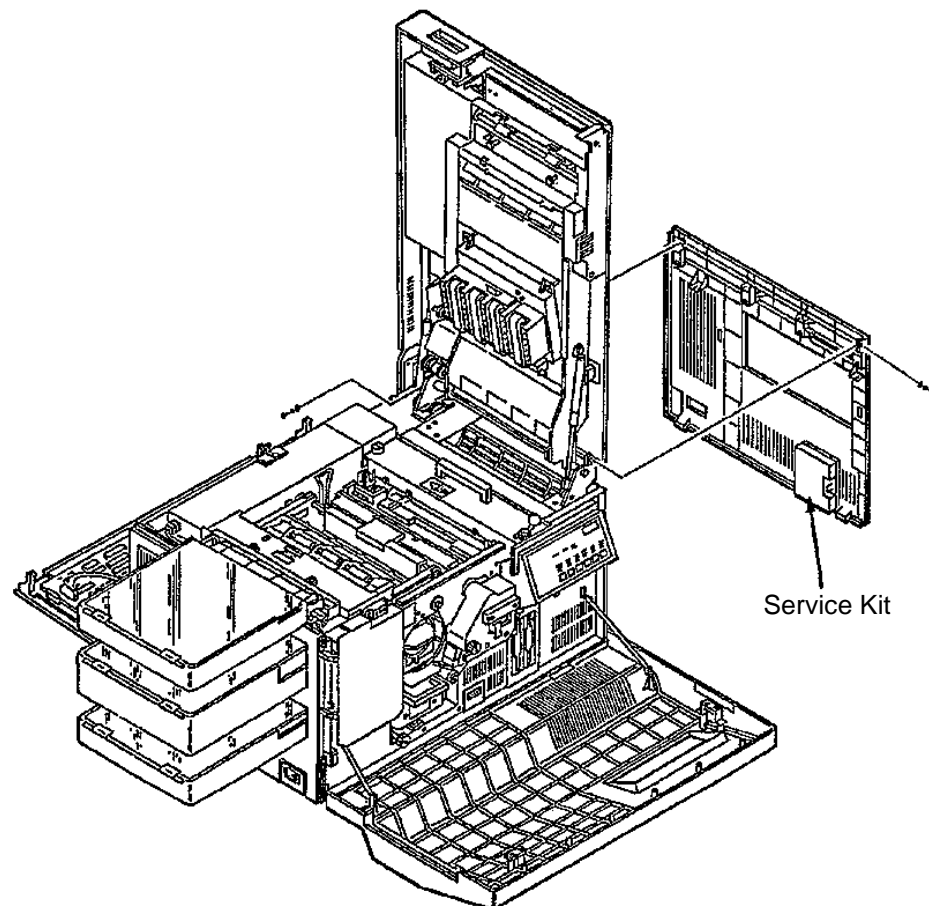
The service kit is attached inside the right side cover.

To remove the right side cover:

- 1 Remove the paper output tray.
- 2 Open the top, back, and front covers.
- 3 Remove the two screws holding the right side cover in place.
- 4 Close the top cover.
- 5 Pull the cover out and away from the printer.

Replacement Note:

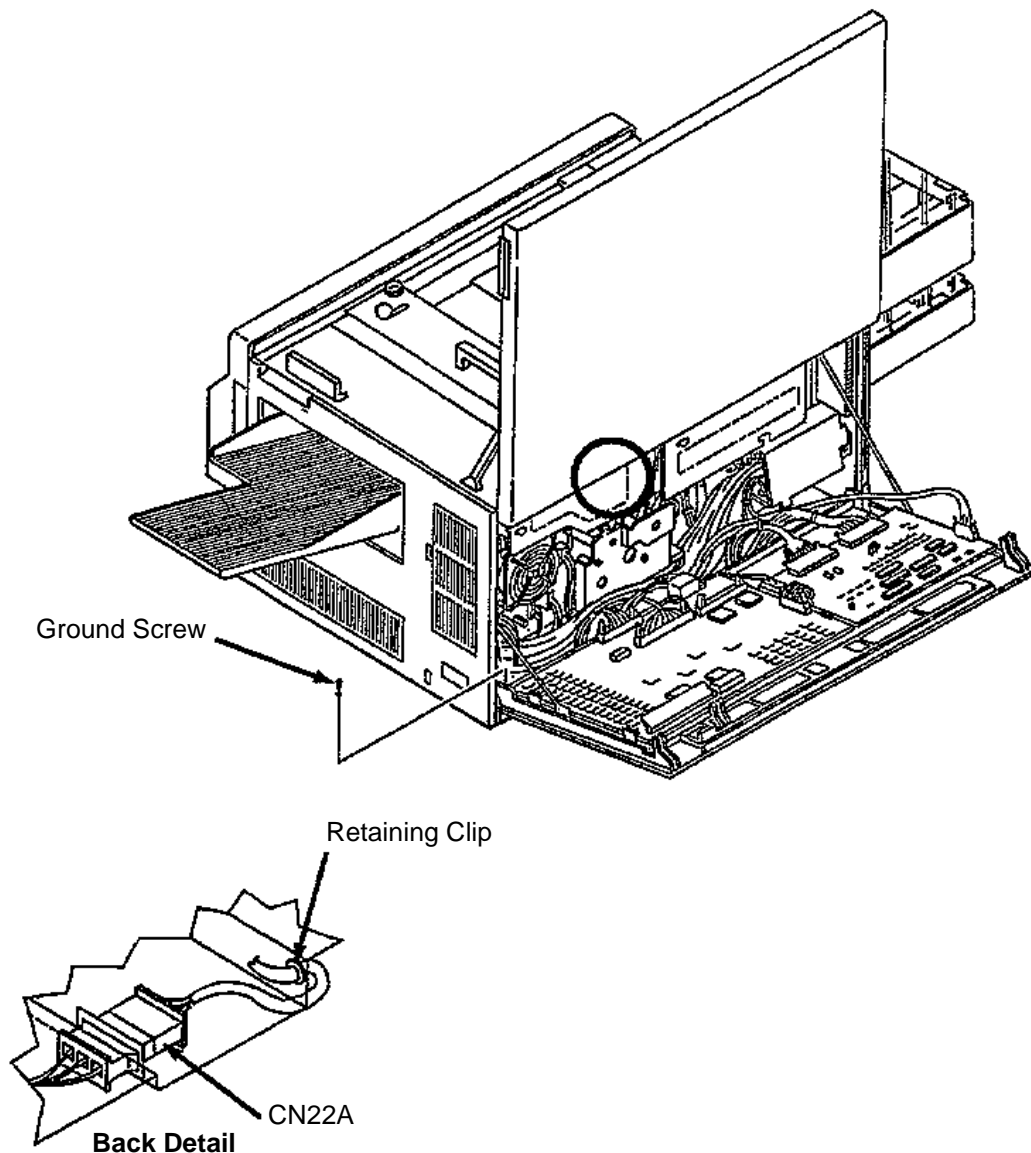
Tighten the screws first. Then, gently lift the bottom tabs into place. Hold the top of the right side cover in place as you open the top cover. (This avoids the possibility of damaging the top cover.)



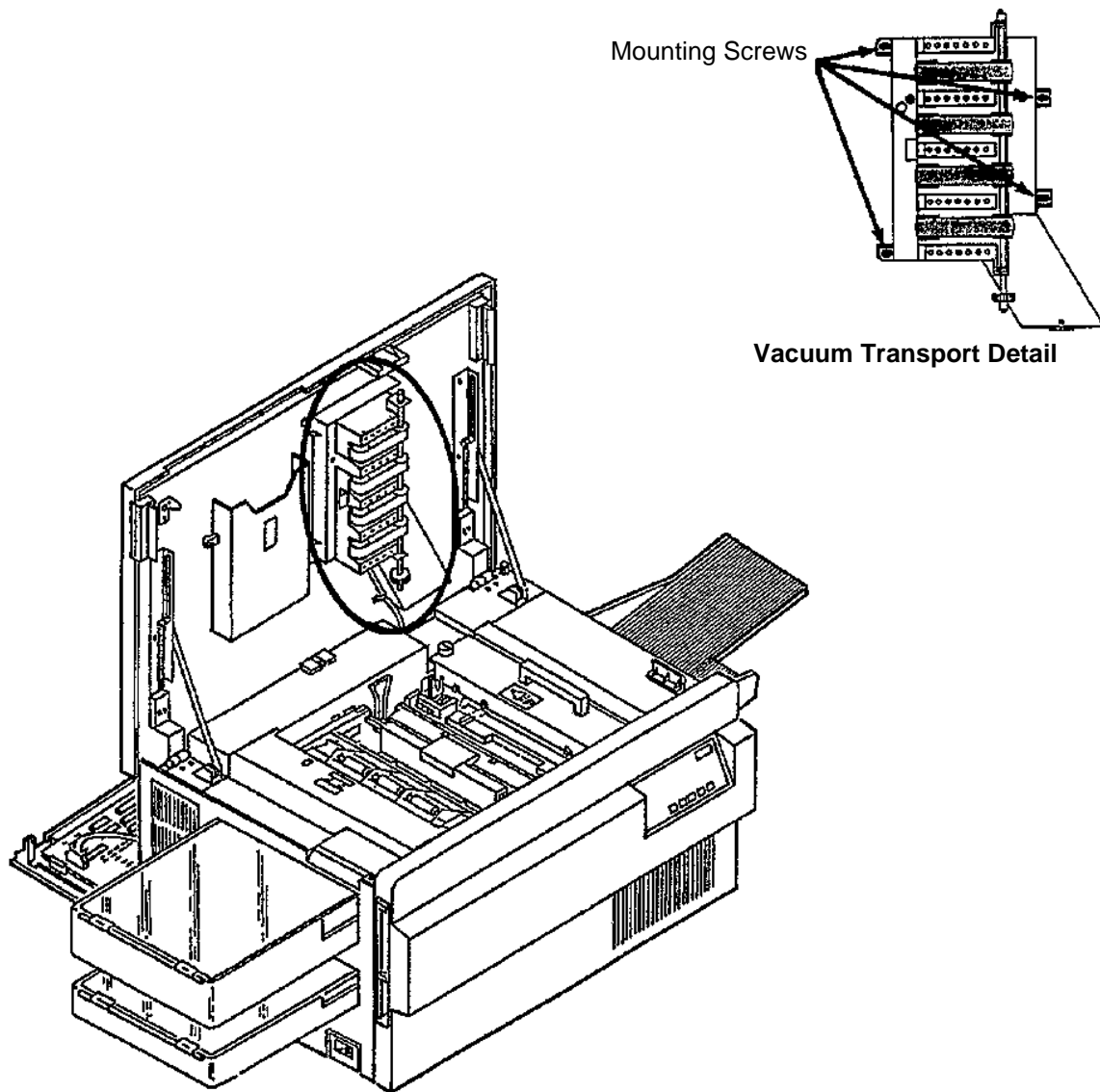
Vacuum Transport Unit Removal (Simplex)

To remove the simplex vacuum transport unit:

- 1 Open the top and back cover.
- 2 Disconnect CN22A.
- 3 Remove the retaining clip holding the cable in place.
- 4 Remove the ground screw on the left side of the back cover.
- 5 Remove the harness stays holding the cable in place.
- 6 Remove the vacuum transport unit (four screws).



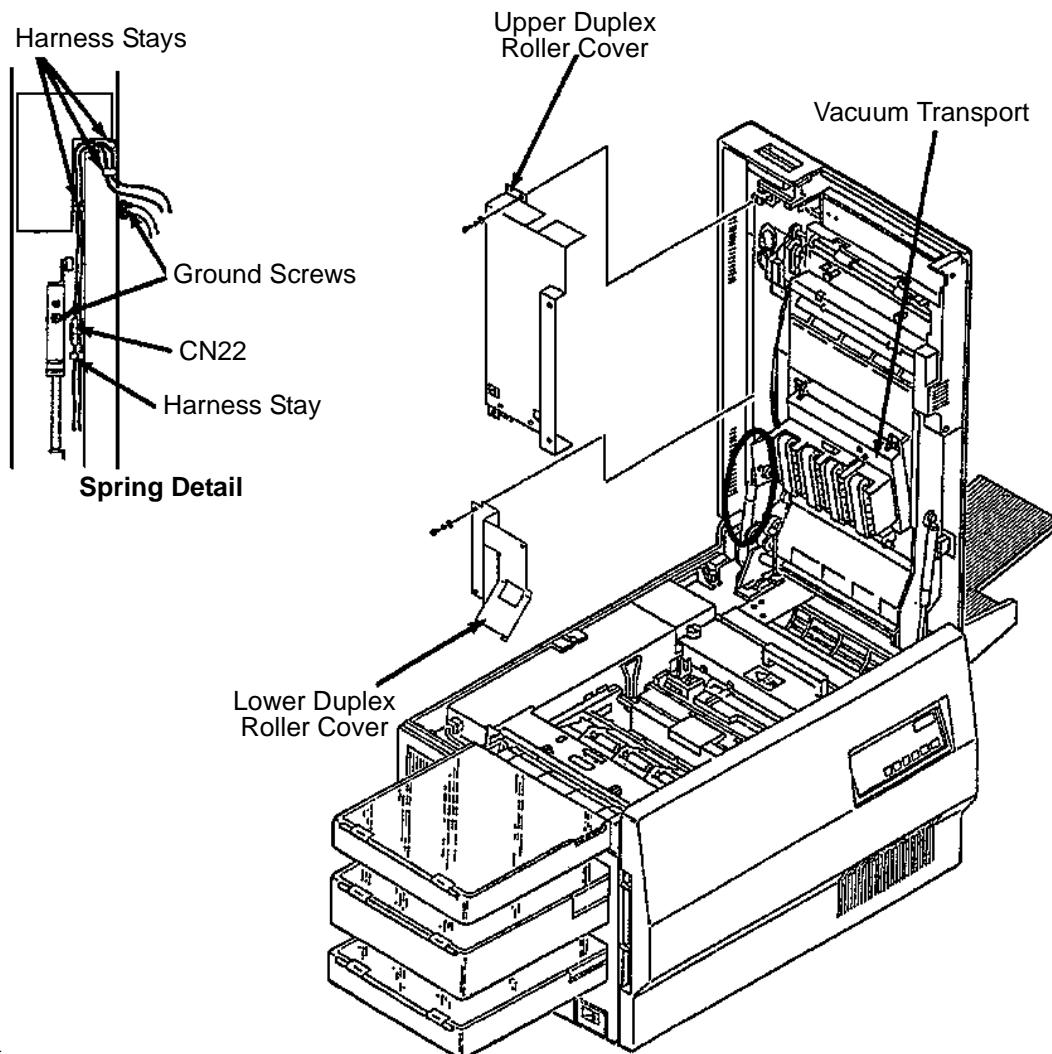
Vacuum Transport Unit Removal (Simplex)



Vacuum Transport Unit Removal (Duplex)

To remove the duplex vacuum transport unit:

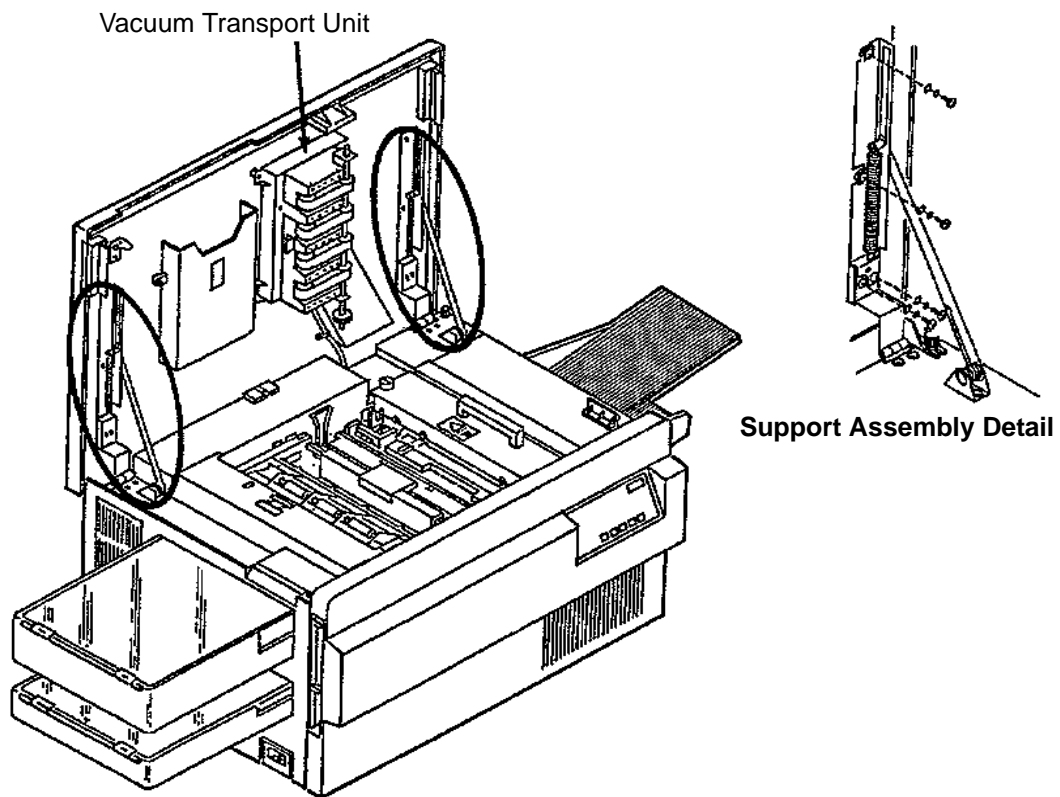
- 1 Open the top cover.
- 2 Remove the upper duplex roller cover (four screws).
- 3 Remove the lower duplex roller cover (four screws).
- 4 Disconnect CN22.
- 5 Remove the C-clip from the gas spring on the side marked "up." Gently move the gas spring out of the way so it does not block the wire harness area.
- 6 Remove the four harness stays holding the cable in place.
- 7 Remove the three ground screws.
- 8 Remove the vacuum transport unit (four screws).



Top Cover Removal

To remove the top cover:

- 1 Open the top cover.
- 2 Remove the vacuum transport unit from the top cover. It is not necessary to remove it completely from the printer. (Refer to [page 7-11.](#))
- 3 Remove the four screws for each support assembly.
- 4 Lift the top cover up and away from the printer.



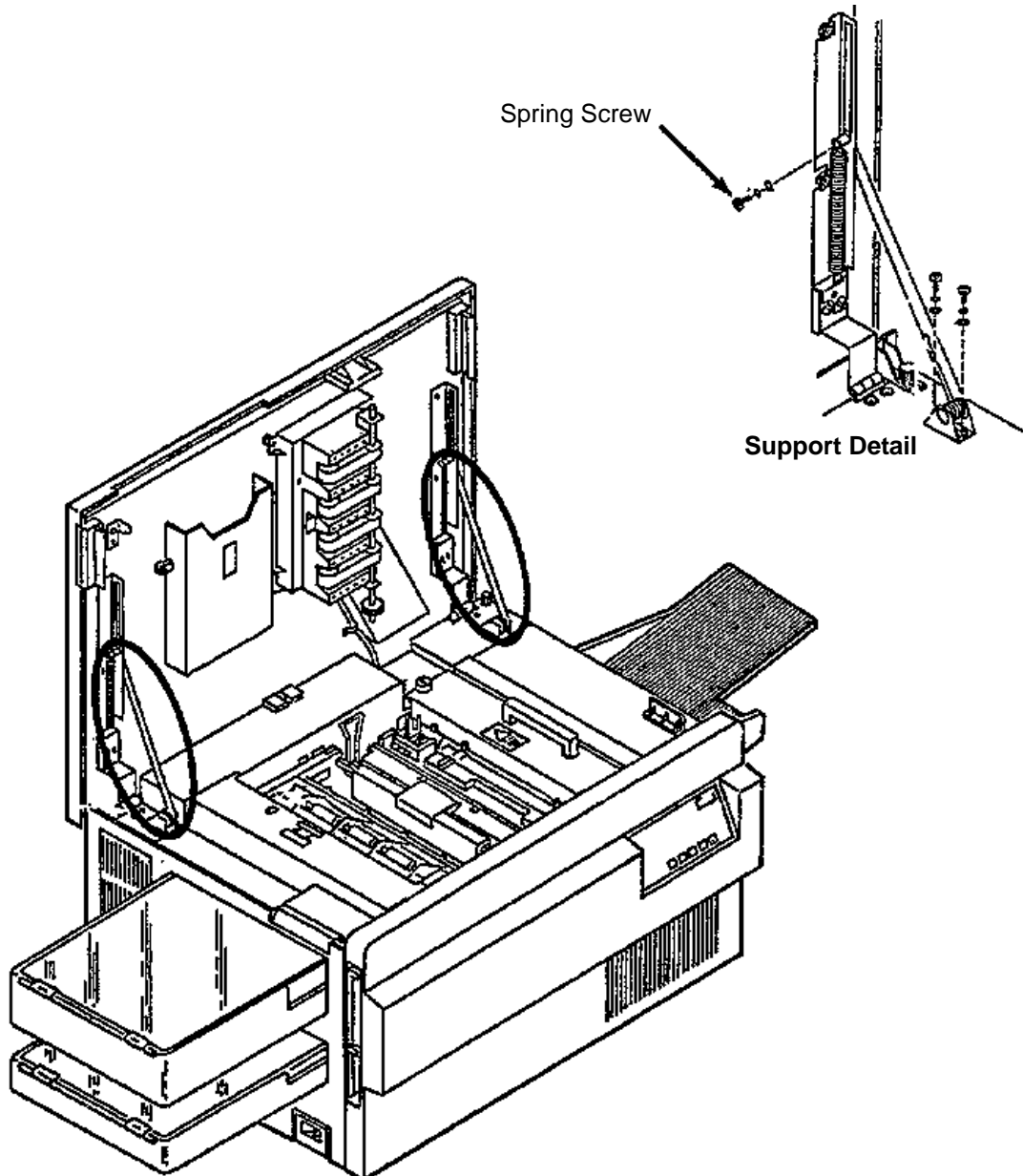
Top Cover Support Removal

To remove the top cover support:

- 1 Open the top cover.
- 2 Remove the spring from the top cover support (single screw).
- 3 Remove the screws holding the support to the base of the printer.

Replacement Note:

Replace one support at a time so that the other remains in place to stabilize the top cover.



Top Cover Hinge Removal

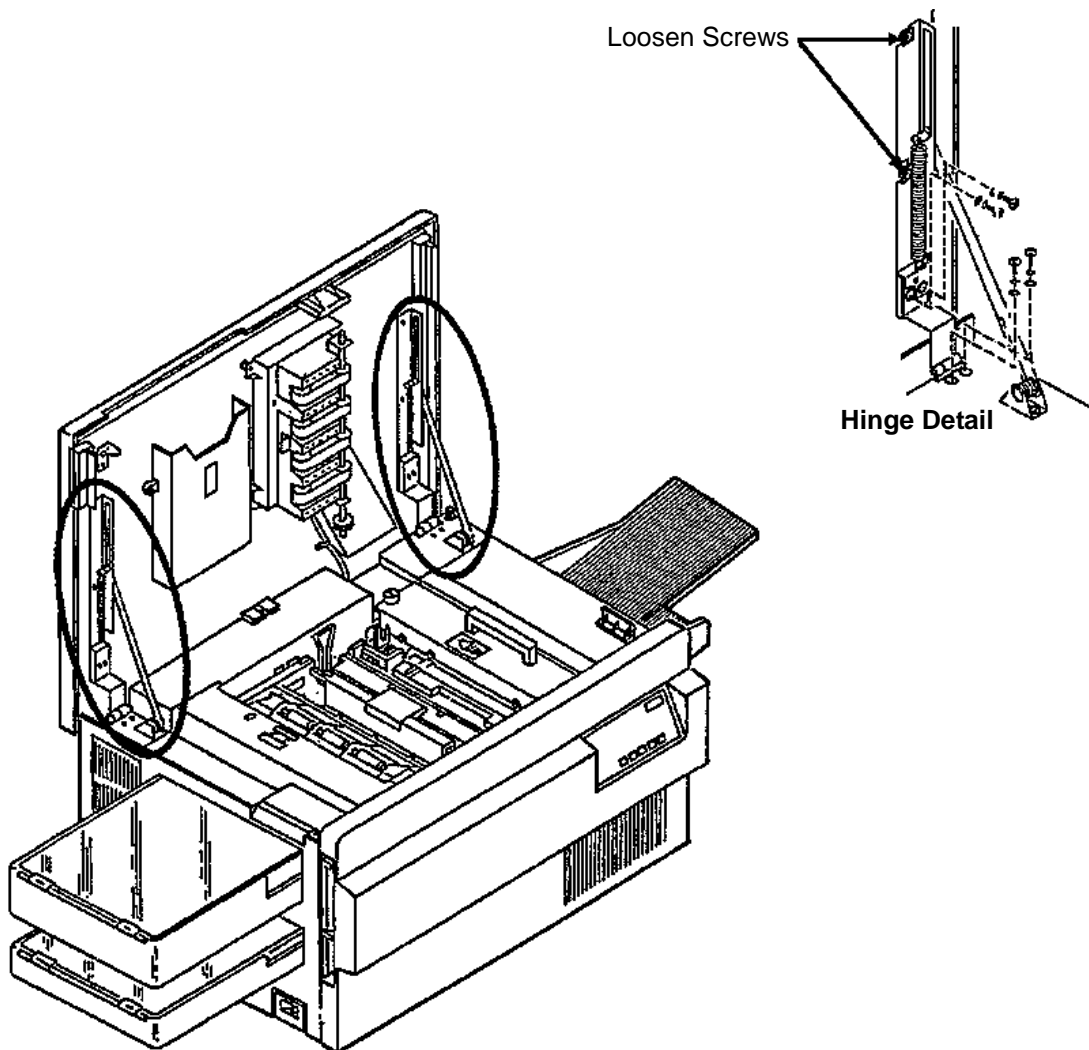
Top Cover Hinge Removal

To remove the top cover hinge:

- 1 Open the top cover.
- 2 Remove the two screws holding the hinge/support to the top cover.
- 3 Remove the two screws holding the hinge/support to the printer base.
- 4 While supporting the top cover, loosen the top two screws.
- 5 Remove the hinge.

Replacement Note:

Replace one hinge at a time so that one always remains in place to support the top cover.



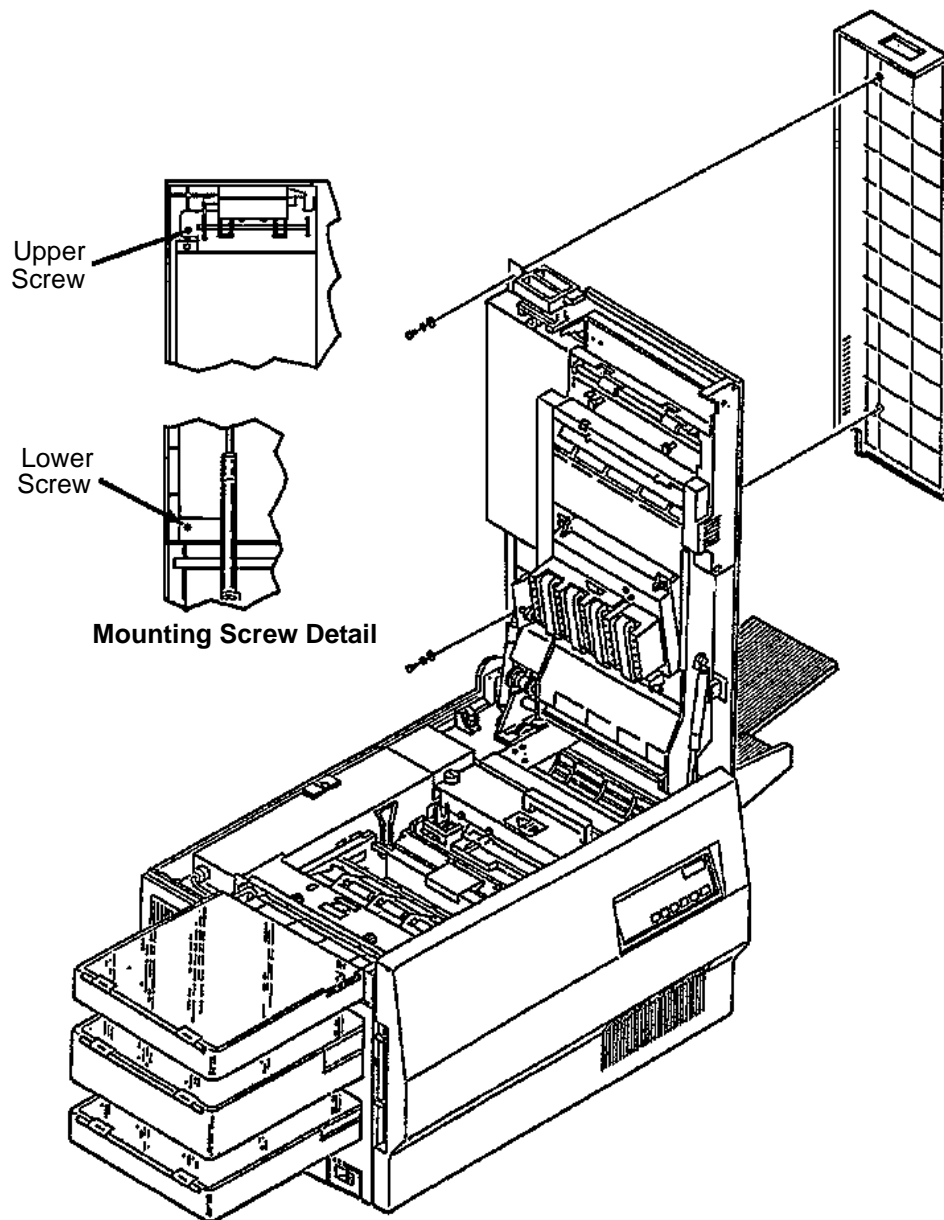
Rear Duplex Cover Removal

To remove the rear duplex cover:

- 1 Open the top cover.
- 2 Remove the lower screw for the rear duplex cover.
- 3 While supporting the cover, remove the upper screw for the rear duplex cover.

Replacement Note:

Do not substitute longer screws to hold the rear duplex cover in place.



Front DuplexCover Removal

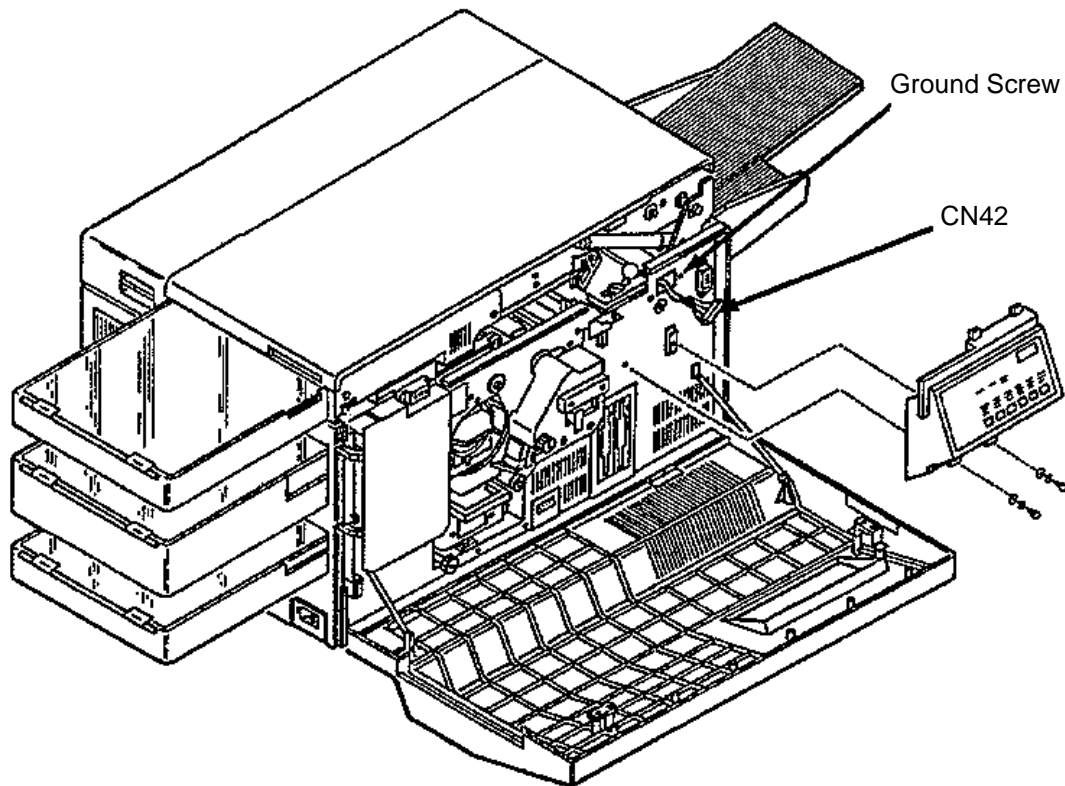
- 1 Open the top cover.
- 2 Remove the rear duplex cover. (Refer to [page 7-17.](#))
- 3 Close the top cover.
- 4 Open the front duplex cover.
- 5 Remove the C-clip from each gas spring.
- 6 While supporting the cover, remove each gas spring from its post and lower it.
- 7 Close the front duplex cover.
- 8 Remove the front hinges from the top cover (two screws each).
- 9 Remove the two screws from each front cover hinge.



Operator Panel Removal

To remove the operator panel:

- 1 Open the front cover.
- 2 Remove the two screws holding the operator panel in place.
- 3 Disconnect connector CN42.
- 4 Remove the ground screw.

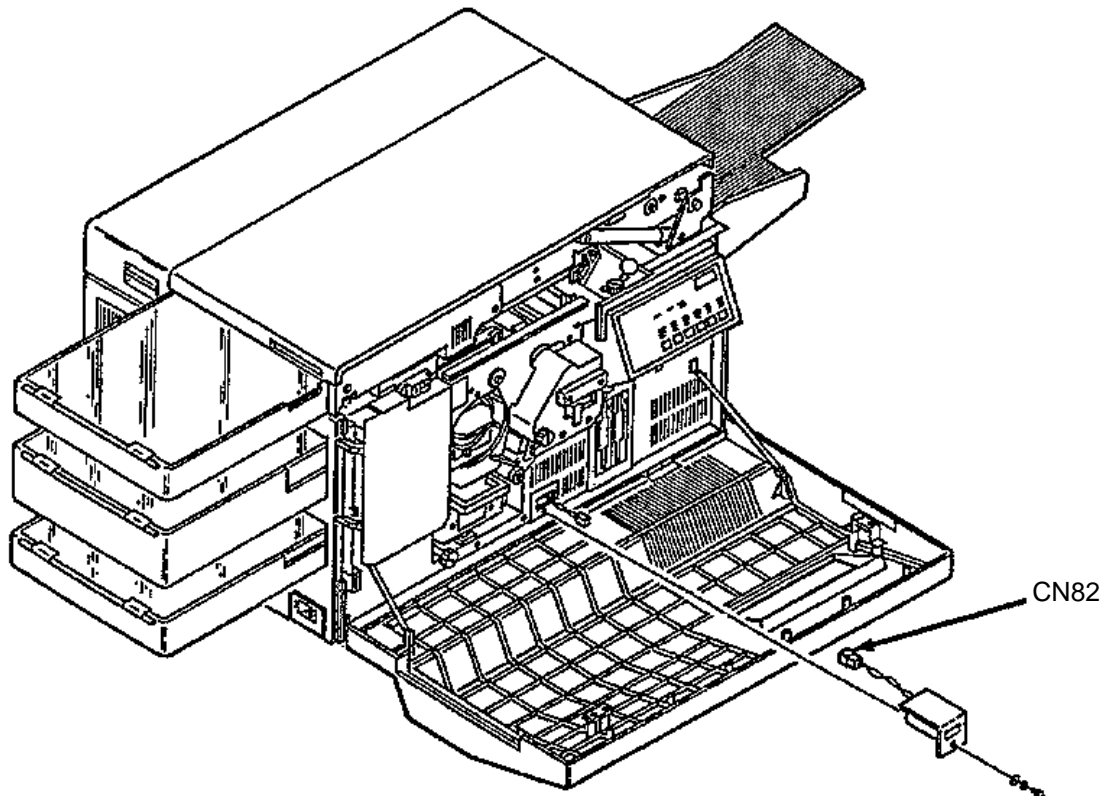


Counter Removal

Counter Removal

To remove the counter:

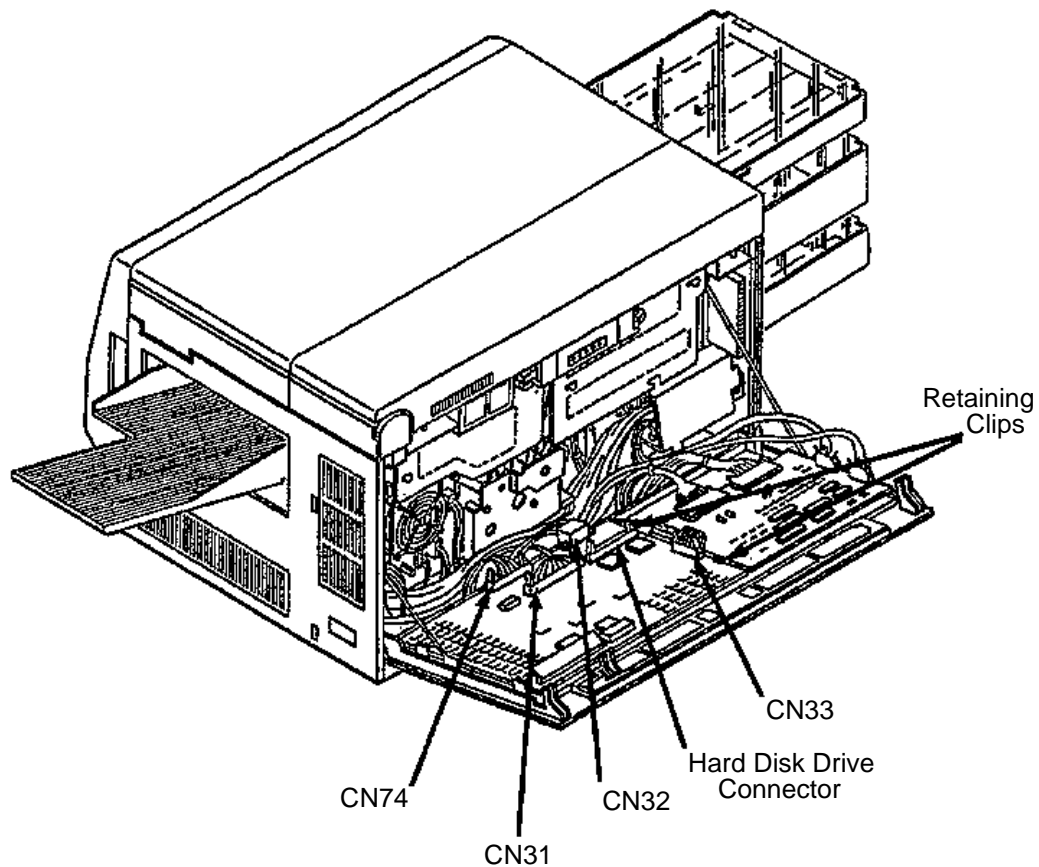
- 1 Open the front cover.
- 2 Remove the screw holding the counter in place.
- 3 Pull out the counter.
- 4 Disconnect connector CN82.



IGS Board Removal

To remove the IGS board:

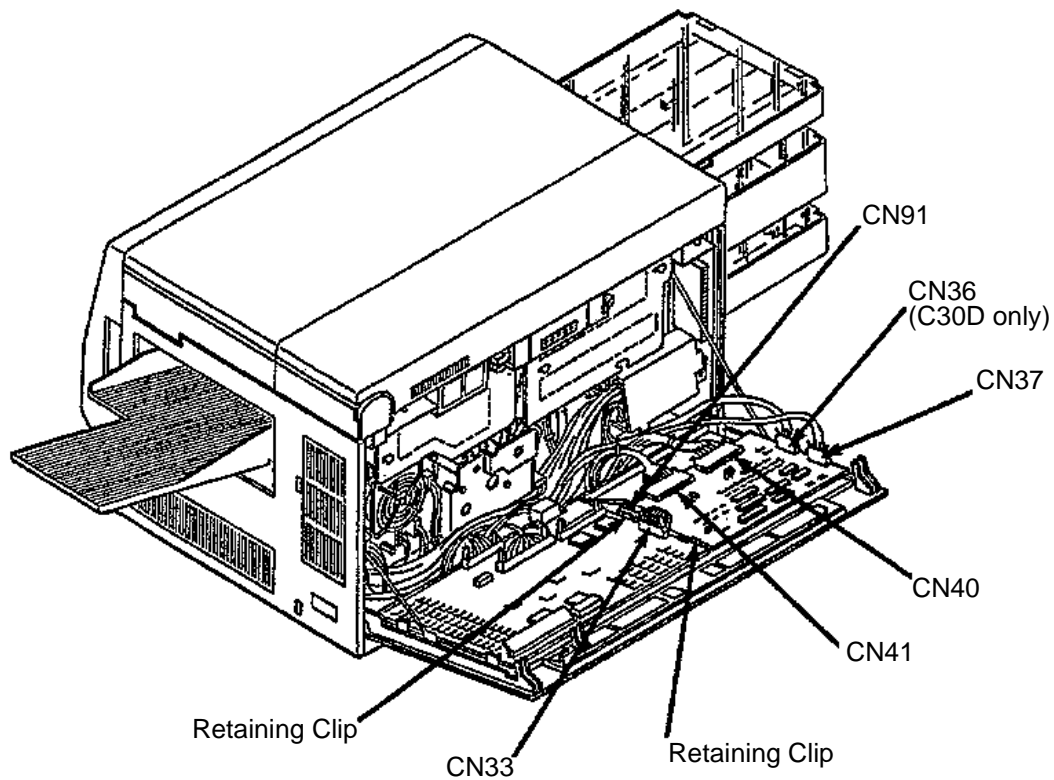
- 1 Open the back cover.
- 2 Disconnect connectors CN31, CN32, CN33, and CN74.
- 3 For the hard drive option, disconnect the drive's data cable.
- 4 Push the two retaining clips away from the board.
- 5 Remove the IGS board.



PCL Board Removal

To remove the PCL board:

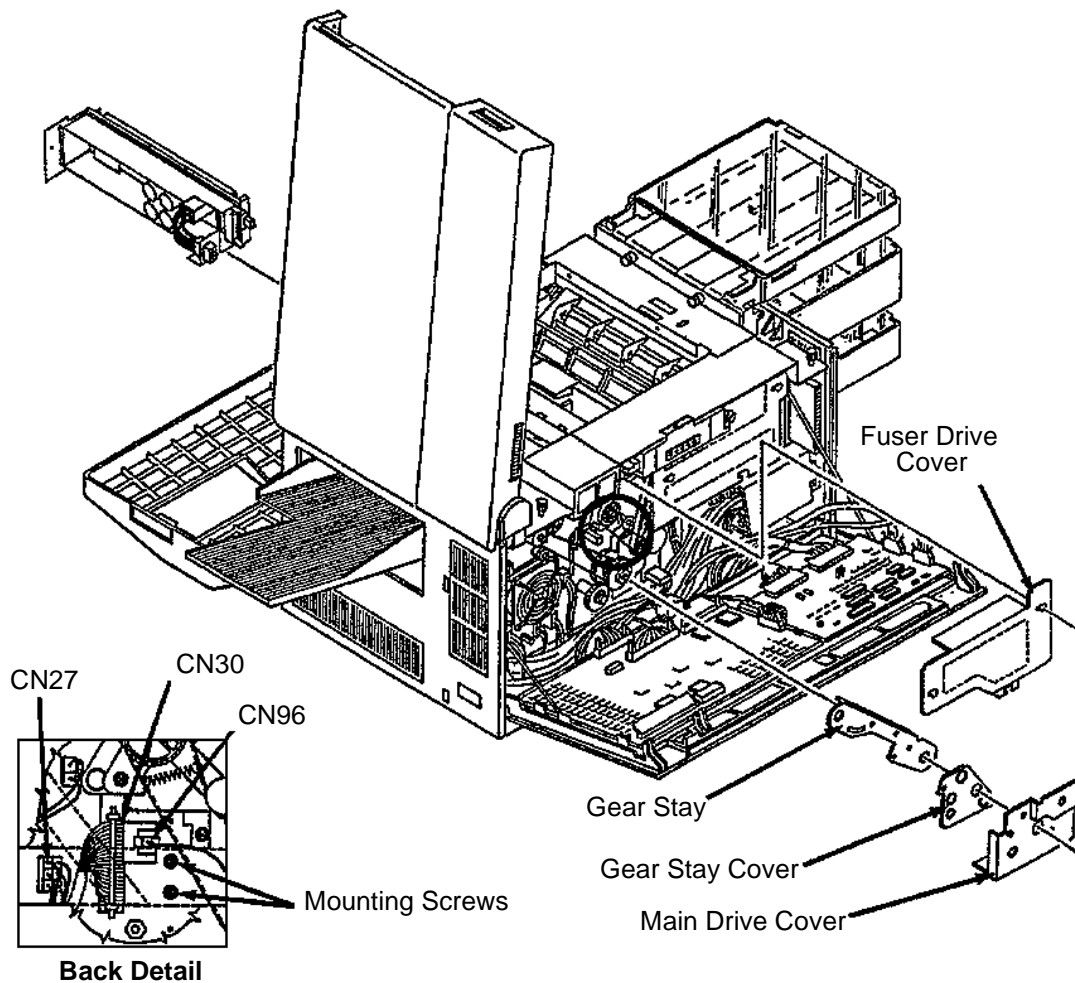
- 1 Open the back cover.
- 2 Disconnect connectors CN33, CN37, CN40, CN41, and CN91.
- 3 **Duplex only:** also disconnect connector CN36.
- 4 Push the two retaining clips away from the board.
- 5 Remove the PCL board.
- 6 Change the settings of the DIP switches on the replacement PCL to match the switch settings on the original PCL.



Printhead Assembly Removal

To remove the printhead assembly:

- 1 Open the front, top, and back covers.
- 2 Remove the photoconductor unit and place in its protective packaging.
- 3 Remove the cleaner unit.
- 4 Remove the fuser drive cover (three screws).
- 5 Remove the main drive cover (one screw).
- 6 Remove the gear stay cover (one screw).
- 7 Remove the gear stay (three screws).
- 8 Disconnect connectors CN27, CN30, and CN96 (see back detail).
- 9 Remove the two back screws holding the printhead assembly in place.



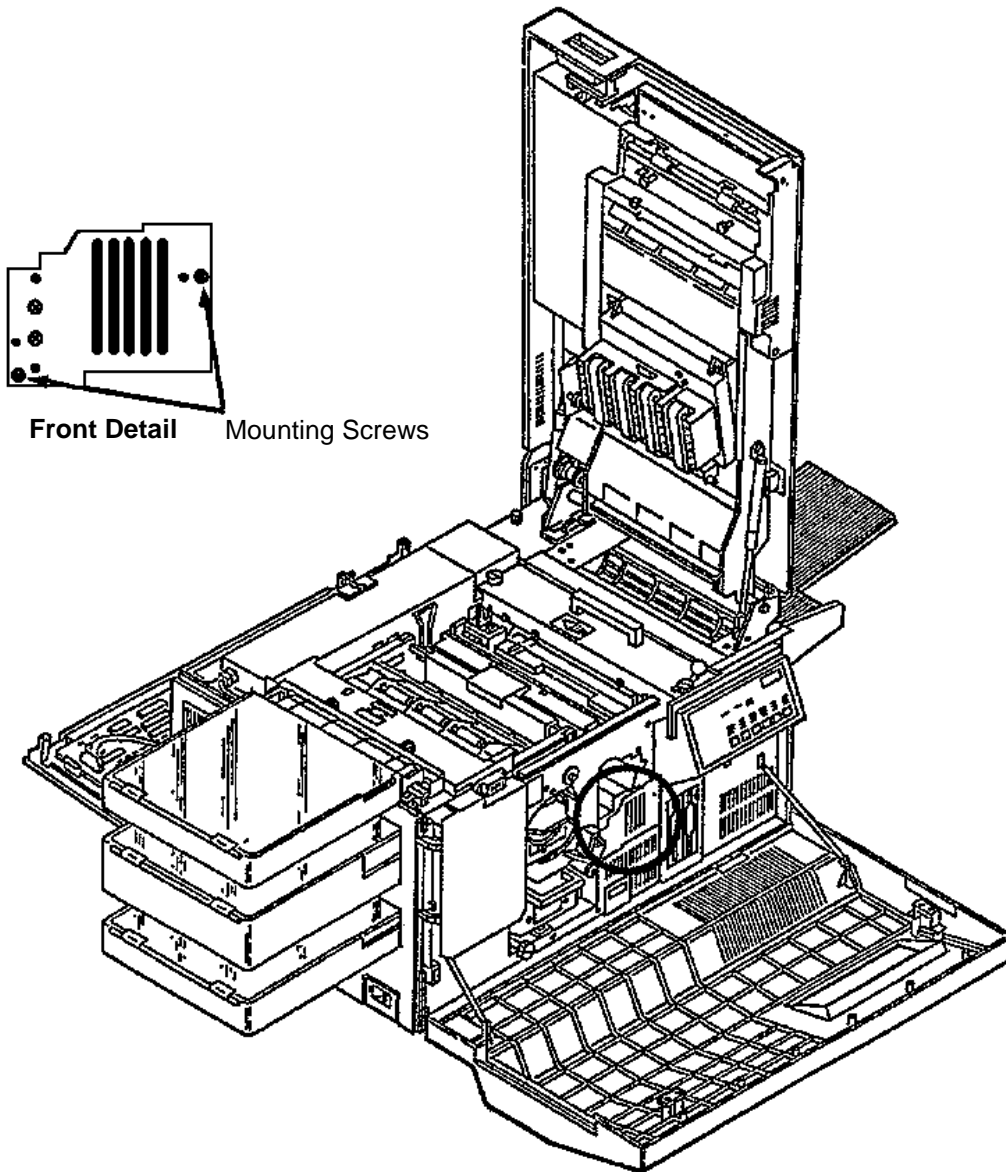
Printhead Assembly Removal

10 Remove the two front screws holding the printhead assembly in place.

11 Pull the printhead assembly from the front of the printer.

Replacement Note:

Do not change the DIP switch setting on the replacement printhead circuit board. These are set at the factory.



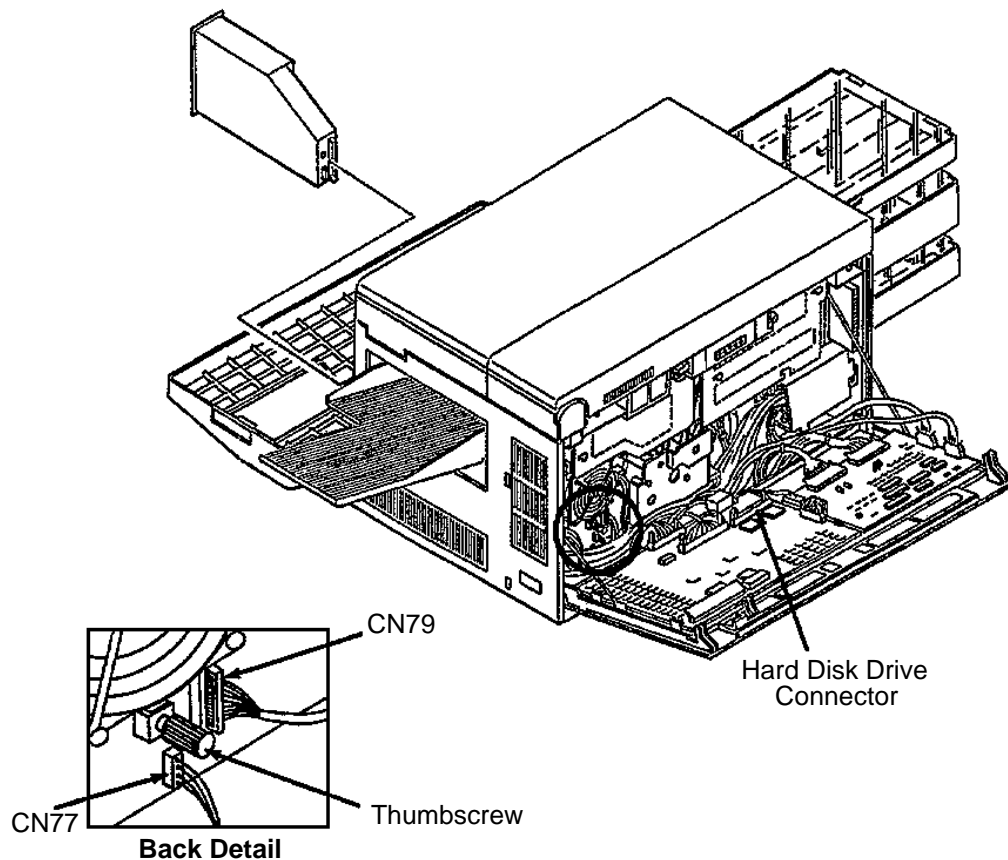
Disk Drive Housing Removal

To remove the disk drive housing:

- 1 Open the front and back covers.
- 2 Remove the diskette(s).
- 3 Disconnect CN77 and CN79.
- 4 For the hard drive option, disconnect the drive's data cable.
- 5 Loosen the thumbscrew on the back of the disk drive housing.
- 6 Remove the disk drive housing from the front of the printer. Be careful not to damage the cables on the sharp edges of the chassis.

Replacement Note:

For A drives, set the jumper on the drive circuit board to 0; for B drives, set the jumper to 1.

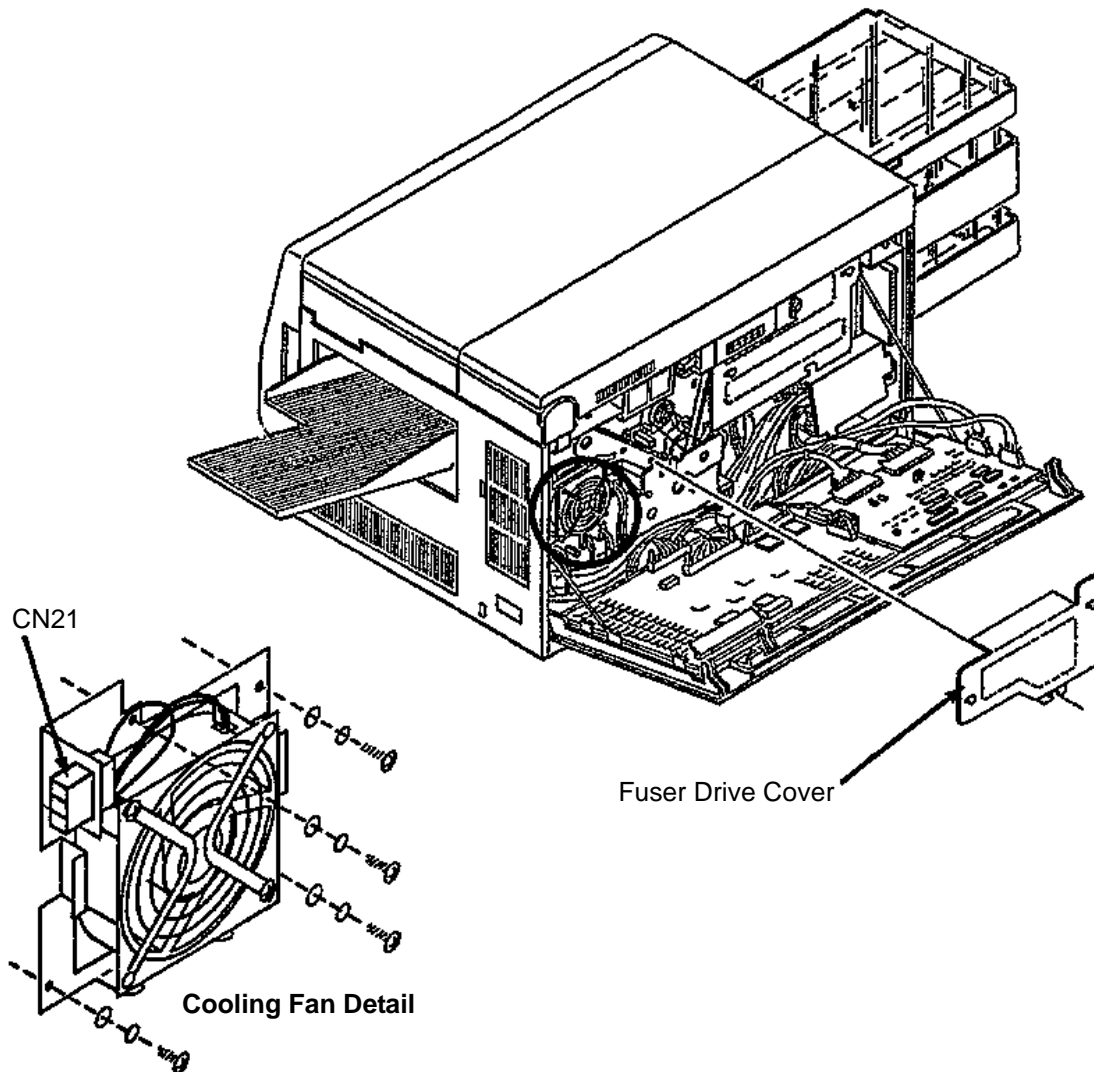


Cooling Fan Removal

Cooling Fan Removal

To remove the cooling fan:

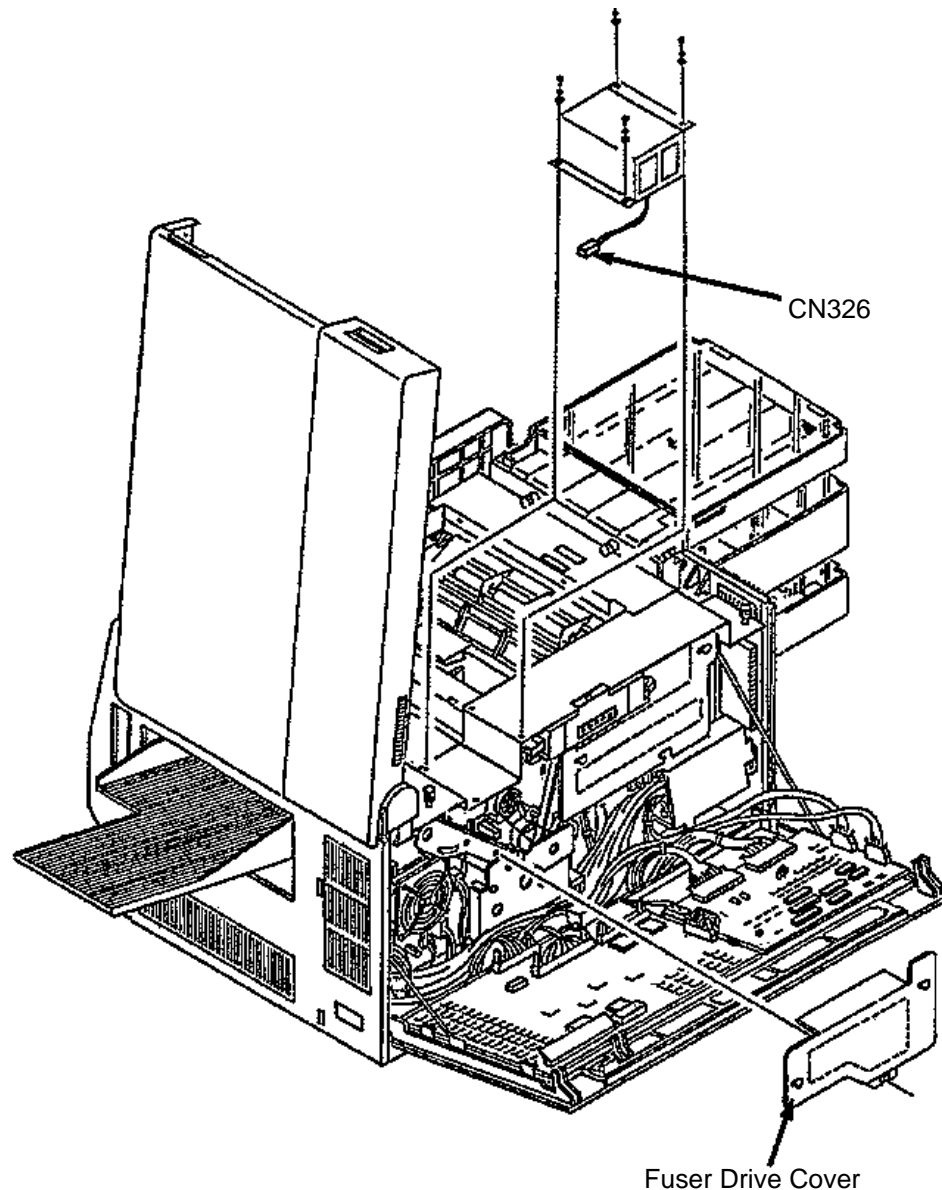
- 1 Open the back cover.
- 2 Remove the fuser drive cover (three screws).
- 3 Disconnect CN21.
- 4 Remove the cooling fan (four screws).



Duplex Fan Removal

To remove the duplex fan:

- 1 Open the back and top covers.
- 2 Remove the fuser drive cover (three screws).
- 3 Remove the EMI grounding plate (if present) from the rear of the printer (four screws).
- 4 Remove the four screws holding the duplex fan in place.
- 5 Disconnect CN326.
- 6 Lift the duplex fan from the printer.

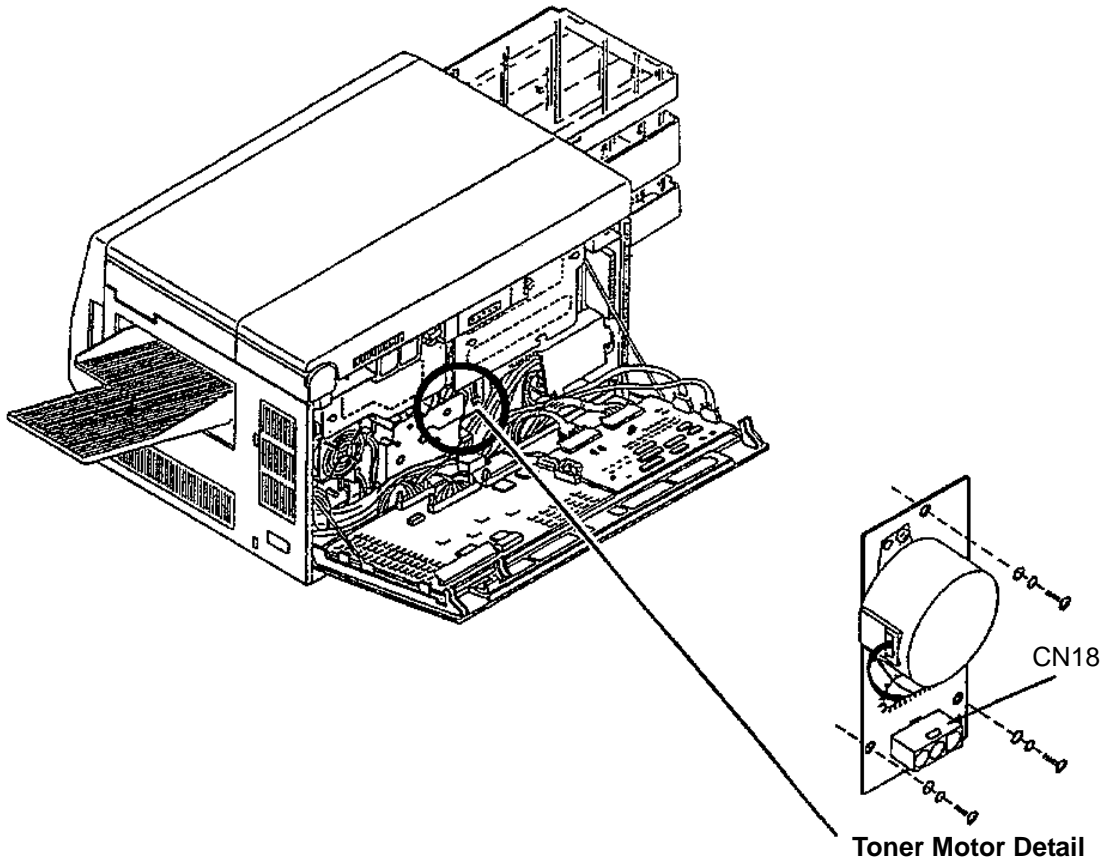


Toner Motor Removal

Toner Motor Removal

To remove the toner motor:

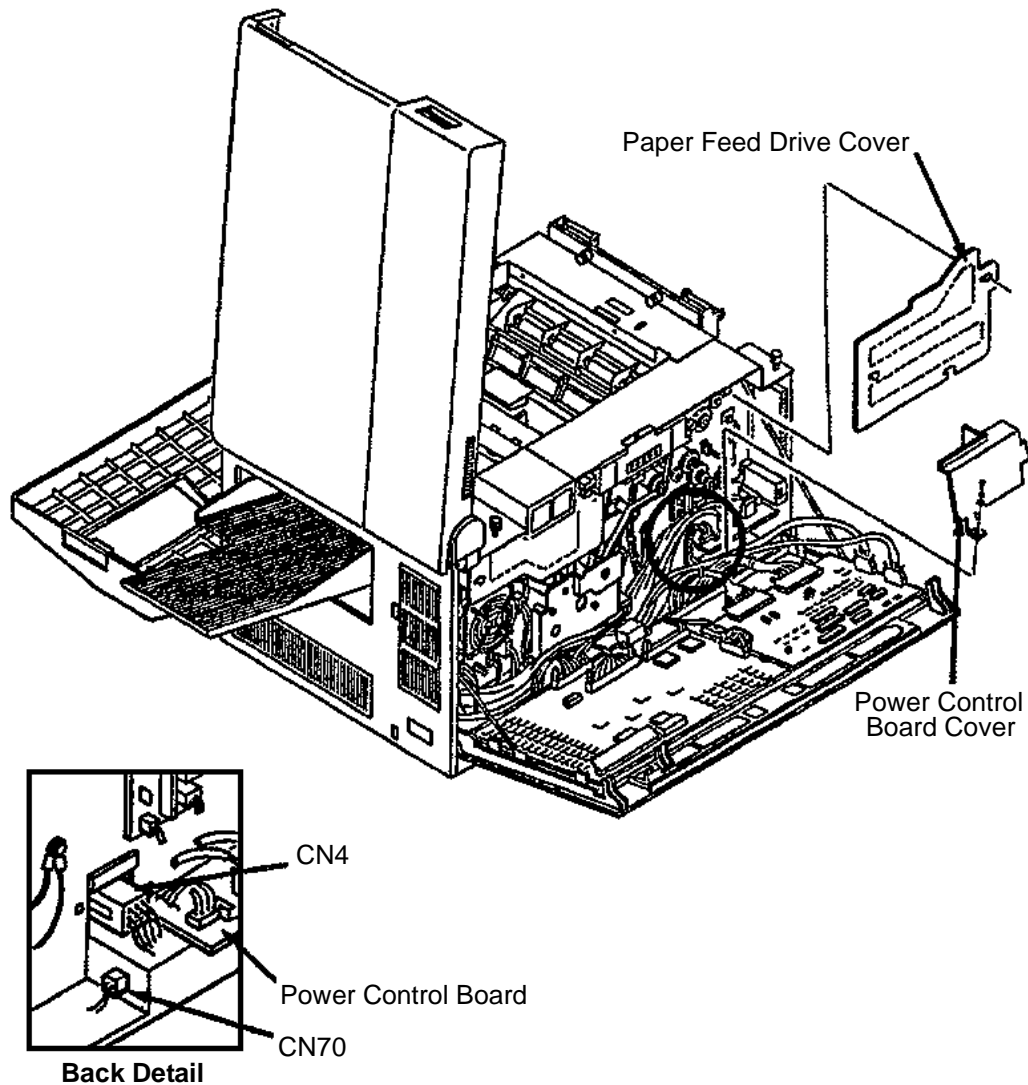
- 1 Open the back cover.
- 2 Disconnect CN18.
- 3 Remove the toner motor (three screws).



AC Power Supply Removal

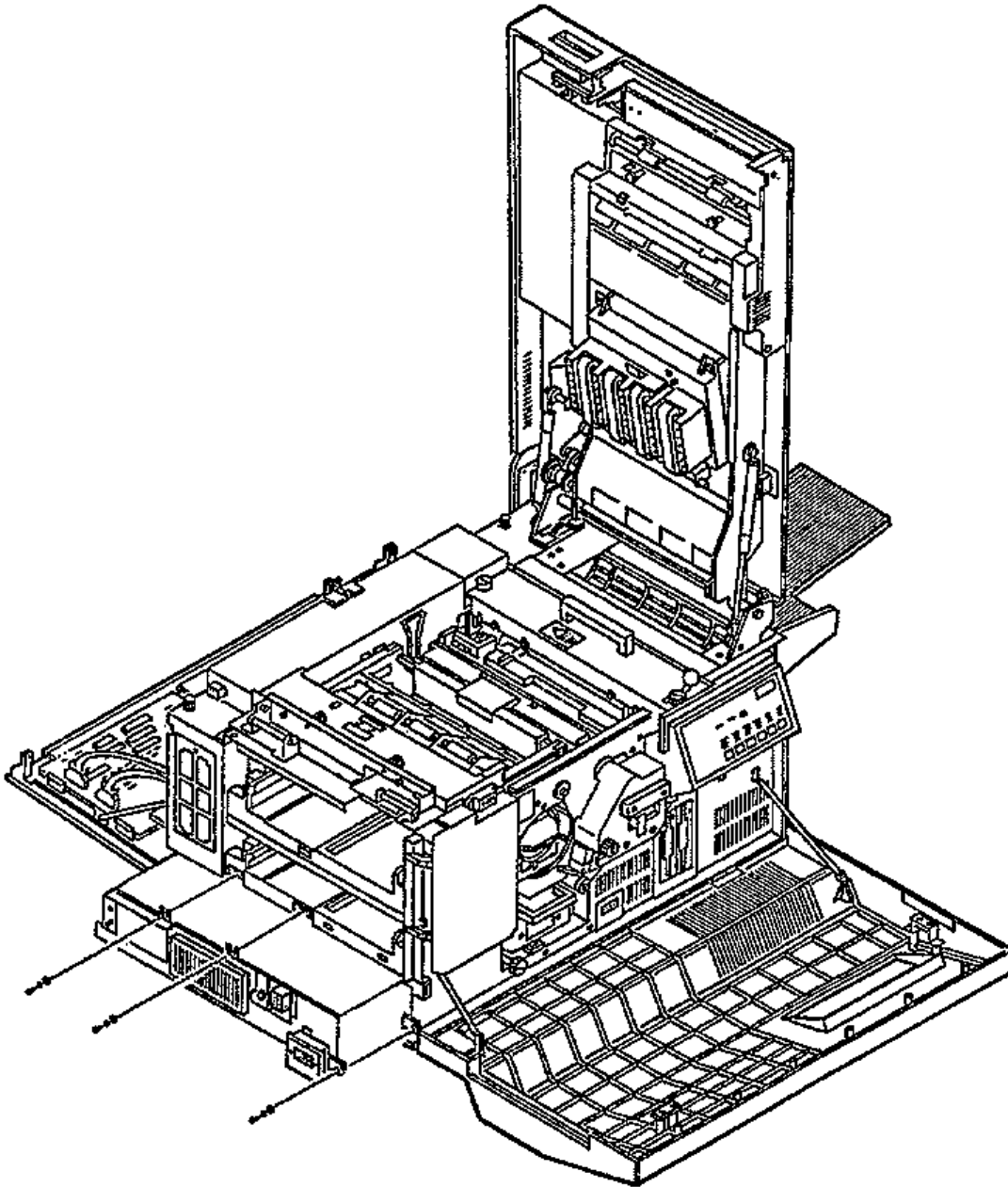
To remove the AC power supply:

- 1 Open the front, back, and top covers.
- 2 **Duplex only:** Remove the duplex tray.
- 3 Remove the upper and lower paper cassettes.
- 4 Remove the left side cover. (See [page 7-8.](#))
- 5 Remove the paper feed drive cover (three screws).
- 6 Remove the power control board cover (one screw).
- 7 Disconnect CN4 and CN70.



AC Power Supply Removal

- 8 From the side of the printer, remove the three screws holding the AC power supply in place.
- 9 Slide the AC power supply out from the side of the printer.



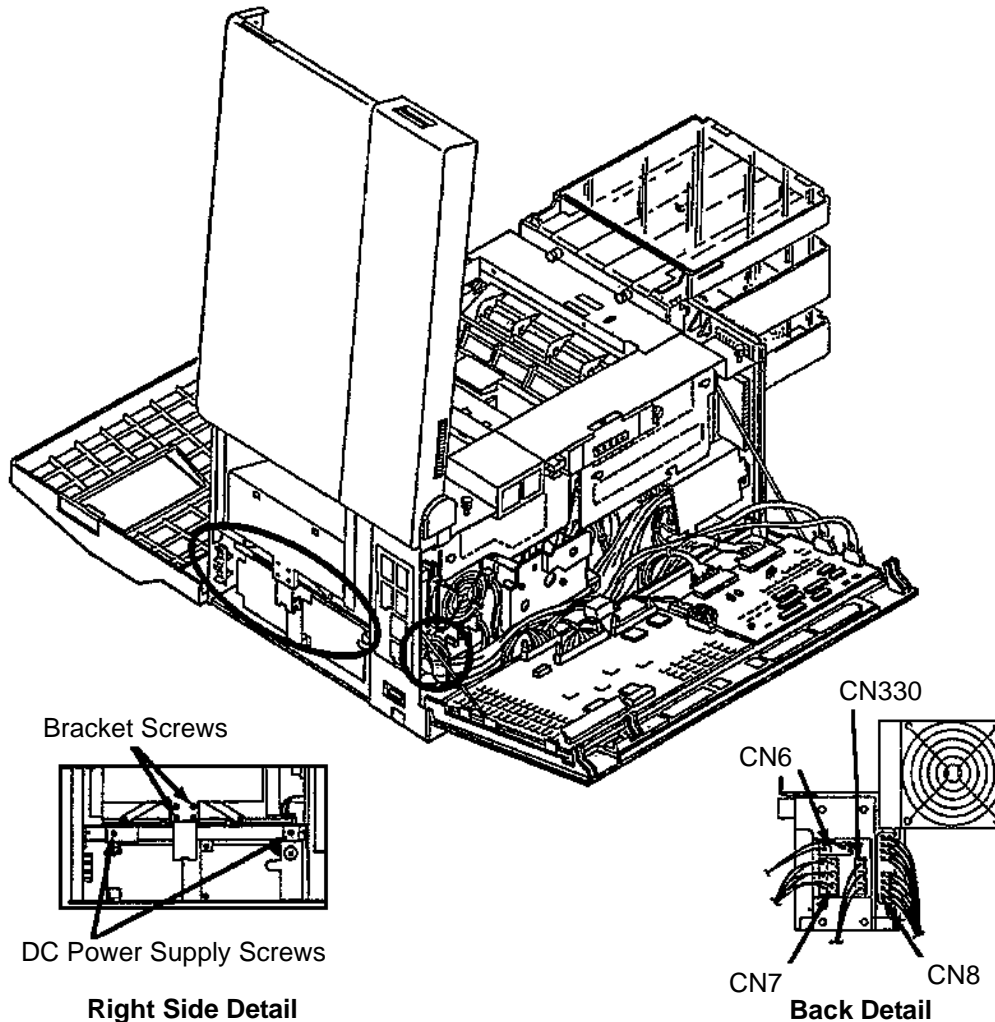
DC Power Supply Removal

To remove the DC power supply:

- 1 Open the front, top, and back covers.
- 2 Disconnect CN6, CN7, CN8, and CN330.
- 3 Remove the output tray.
- 4 Remove the right side cover. (See [page 7-9](#).)
- 5 Remove the bracket for the output tray guide (two screws).
- 6 Remove the DC power supply (two screws).

Replacement Note:

When replacing the output tray bracket, make sure it is seated inside the DC power supply.



High Voltage Unit Removal

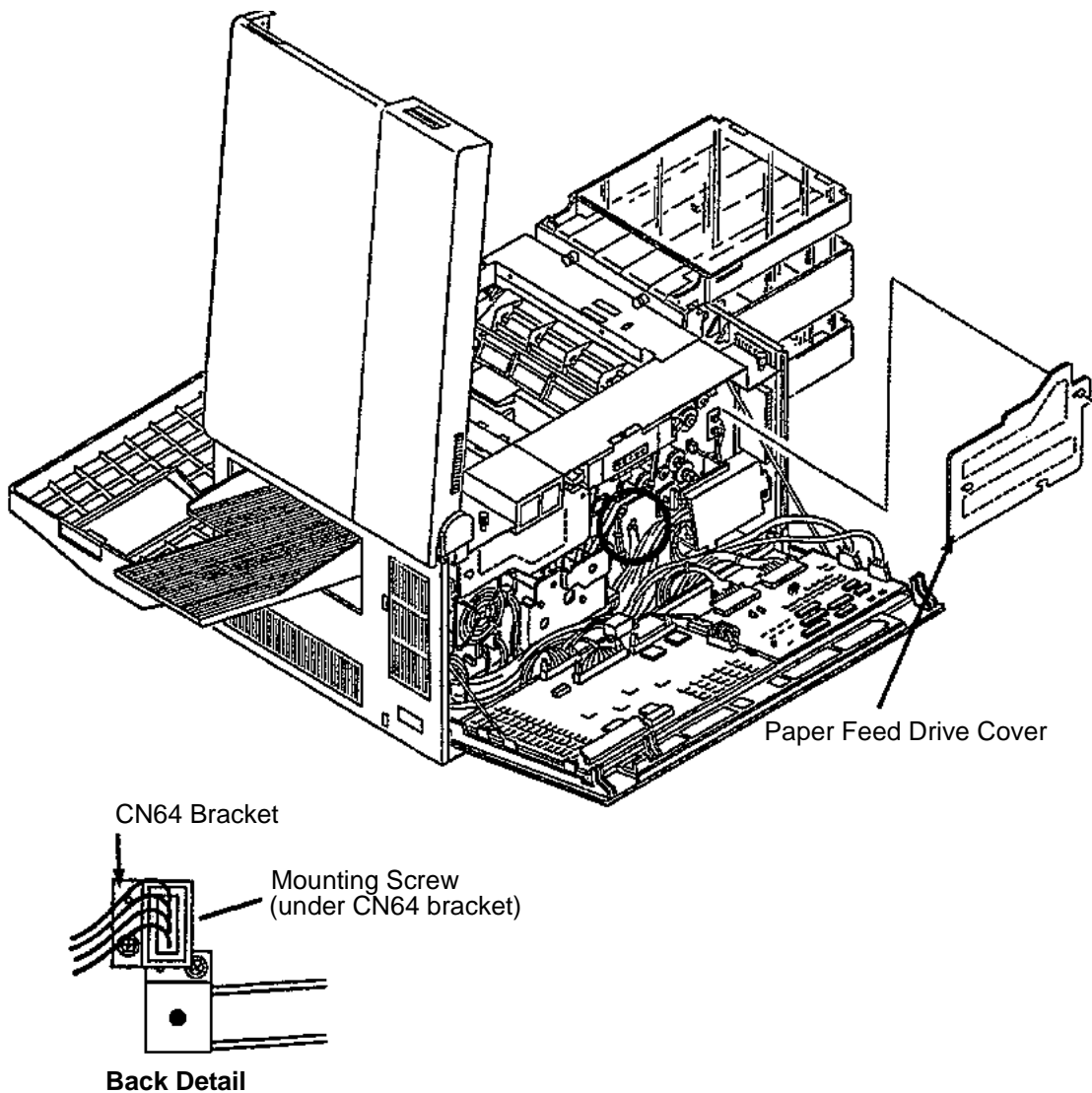
To remove the high voltage unit:

- 1** Open the top and back covers.
- 2** Remove the EMI grounding plate (if present) from the rear of the printer (four screws).
- 3** From the top, loosen the screw holding the high voltage unit in place.
- 4** Pull the high voltage unit out from the back of the printer.
- 5** Disconnect connectors CN23, CN24, CN85, and the two high voltage leads.
- 6** Remove the high voltage unit.

Photoconductor Seam Sensor Removal

To remove the photoconductor seam sensor:

- 1 Open the front, back, and top covers.
- 2 Remove the photoconductor and place in its protective packaging.
- 3 Remove the developer unit.
- 4 Remove the paper feed drive cover (three screws).
- 5 Remove the bracket holding CN64 in place (one screw).
- 6 Remove the screw holding the seam sensor bracket in place. It is situated under the bracket for CN64.

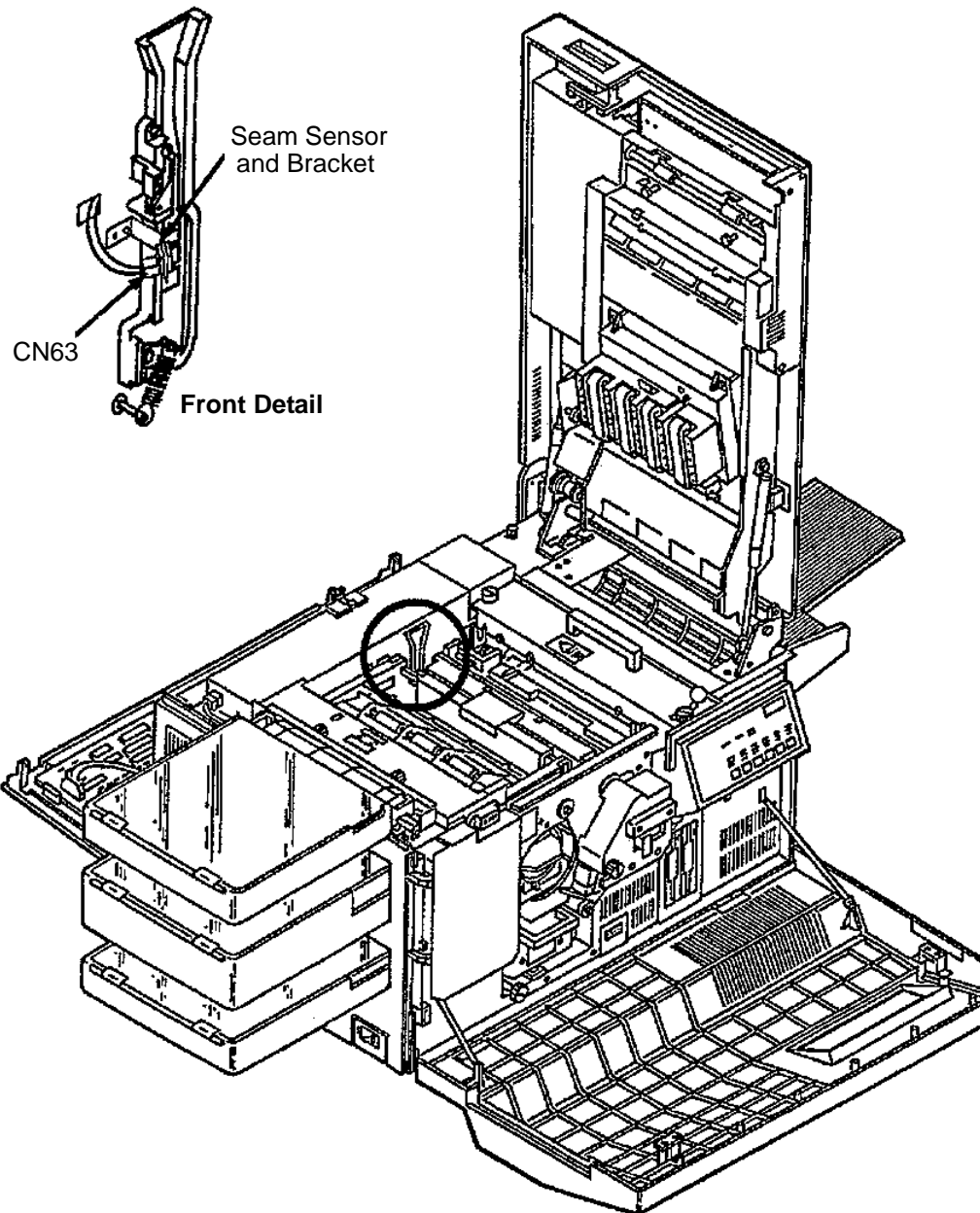


Photoconductor Seam Sensor Removal

7 From inside the empty photoconductor cavity, disconnect connector CN63.

8 Lift the photoconductor seam sensor and bracket up out of the printer.

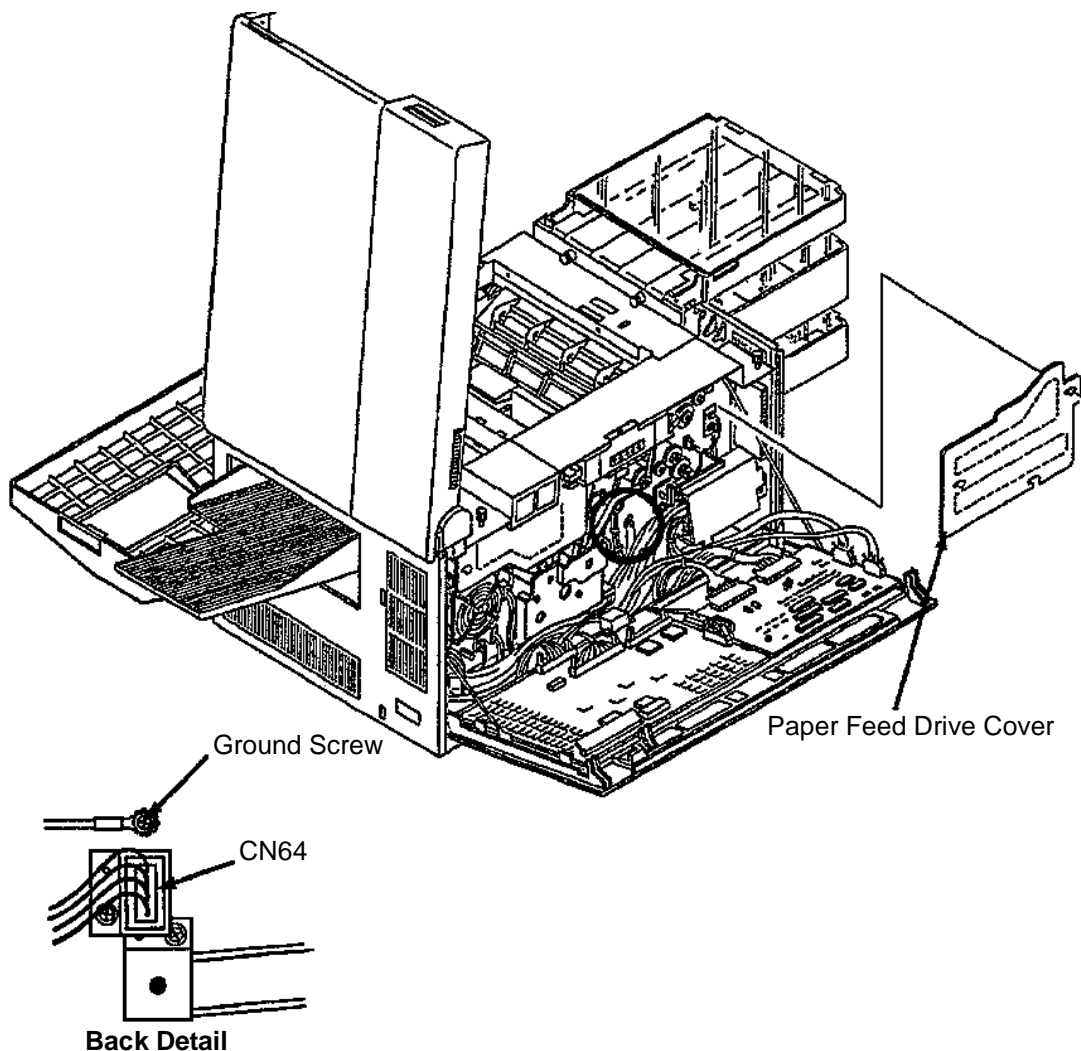
Note: Use caution not to bend the bracket.



Photoconductor Rear Guide Rail Removal

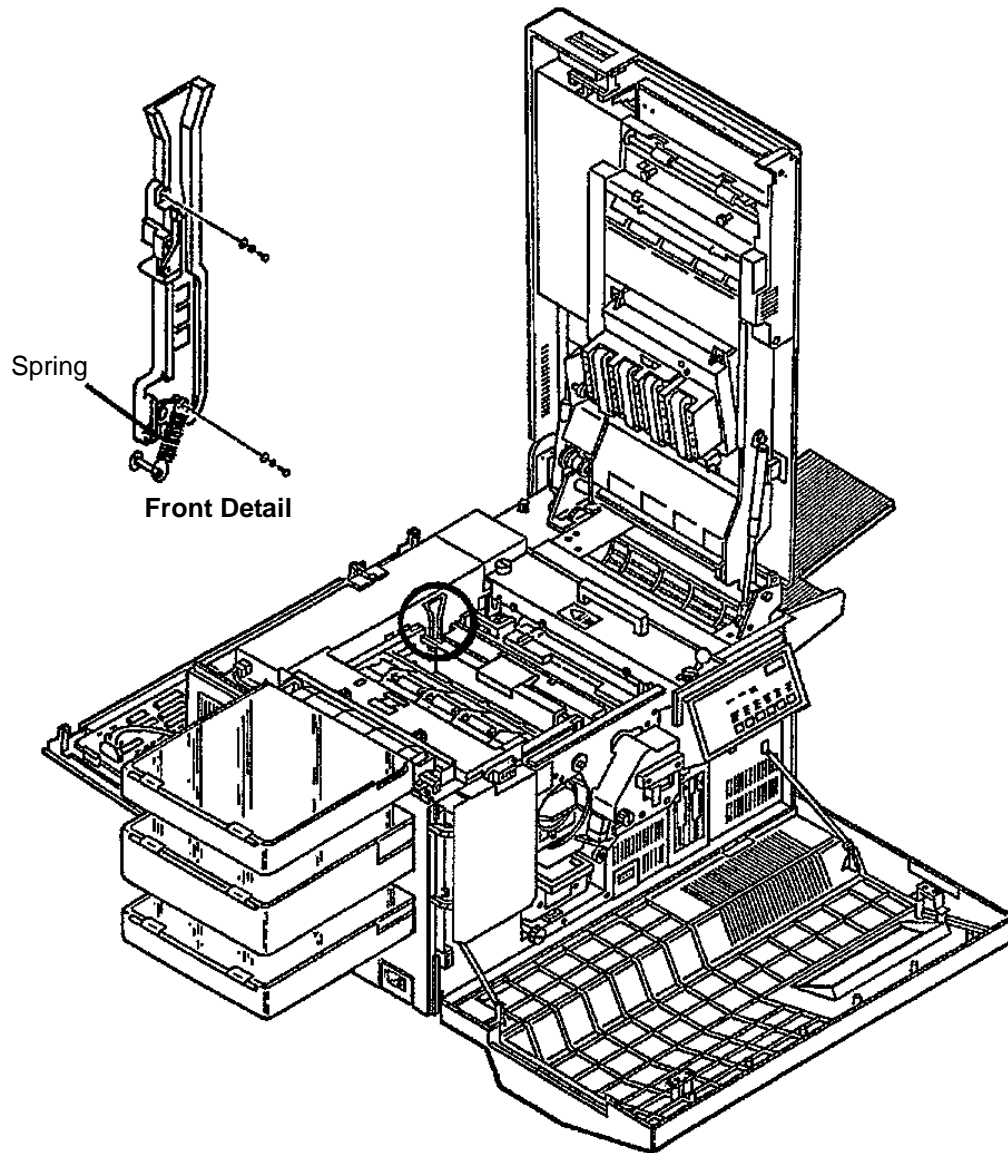
To remove the photoconductor rear guide rail:

- 1 Open the front, back, and top covers.
- 2 Remove the photoconductor and place in its protective packaging.
- 3 Remove the developer unit.
- 4 Remove the paper feed drive cover (three screws).
- 5 Remove the photoconductor seam sensor. (See illustration on [page 7-33.](#))
- 6 Remove the spring at the base of the guide rail. To do this, gently pull the spring forward off its post.
- 7 Disconnect CN64.
- 8 Remove the ground screw.
- 9 Remove CN64 from its bracket.



Photoconductor Rear Guide Rail Removal

- 10 From inside the photoconductor cavity, remove the two screws holding the guide rail in place.
- 11 Push CN64 and the ground wire through the photoconductor cavity to the front of the printer.
- 12 Lift the photoconductor guide rail from the printer.



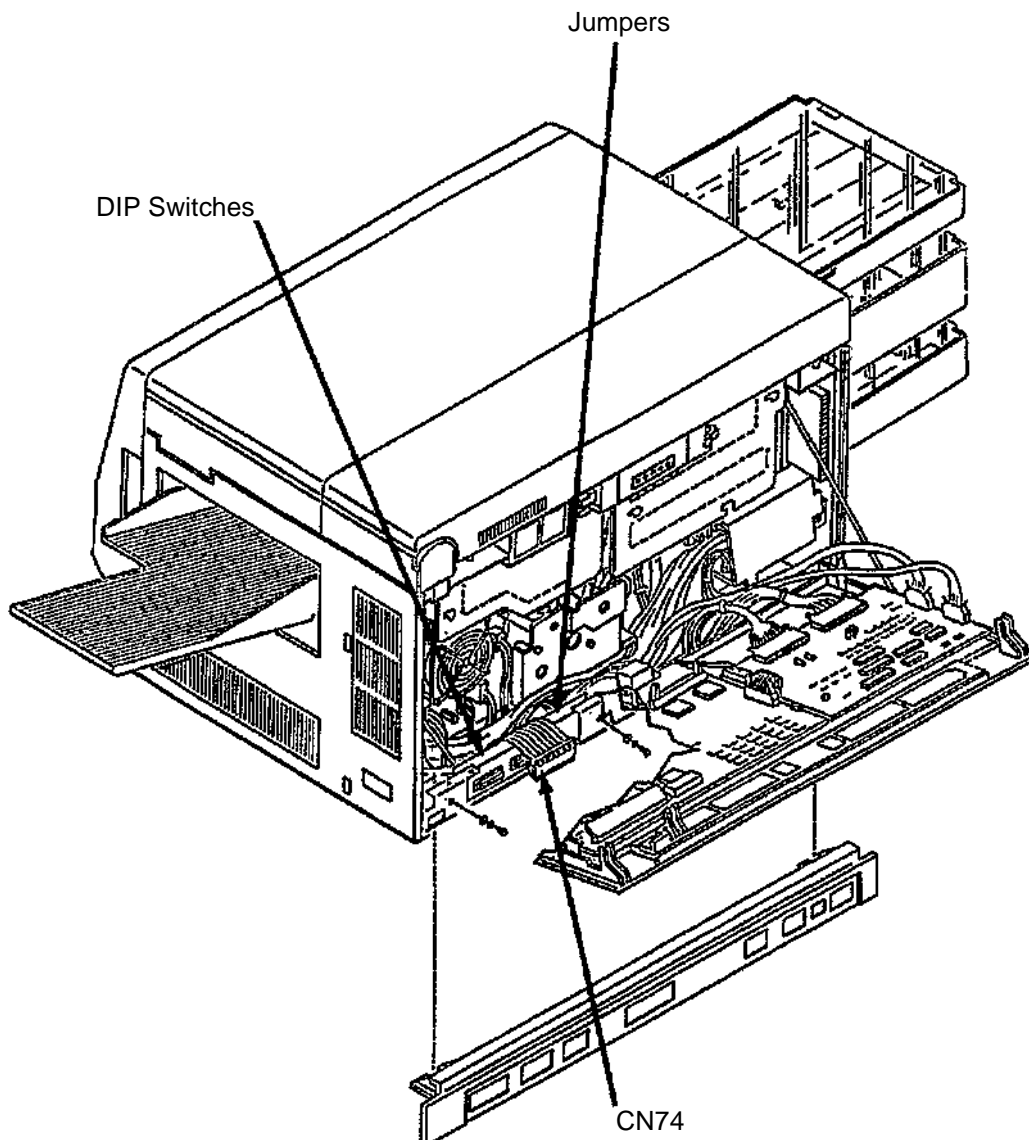
Signal Interface Board Removal

To remove the signal interface board:

- 1 Disconnect all external cables and attachments.
- 2 Open the back cover.
- 3 Remove the lower back cover. (See [page 7-7](#).)
- 4 Disconnect CN74 and P333.
- 5 Remove the signal interface board (two screws).

Replacement Note:

Replicate the DIP switch settings and jumper locations on any new signal interface board.



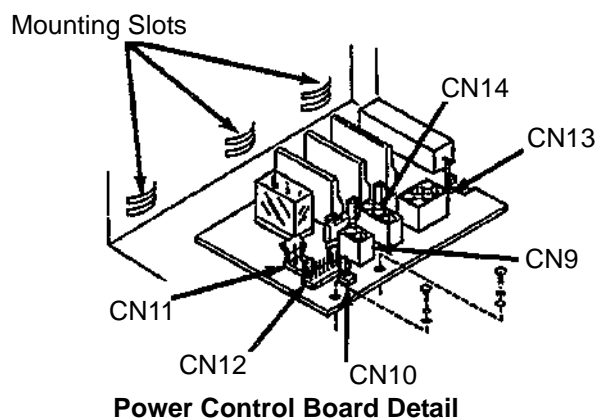
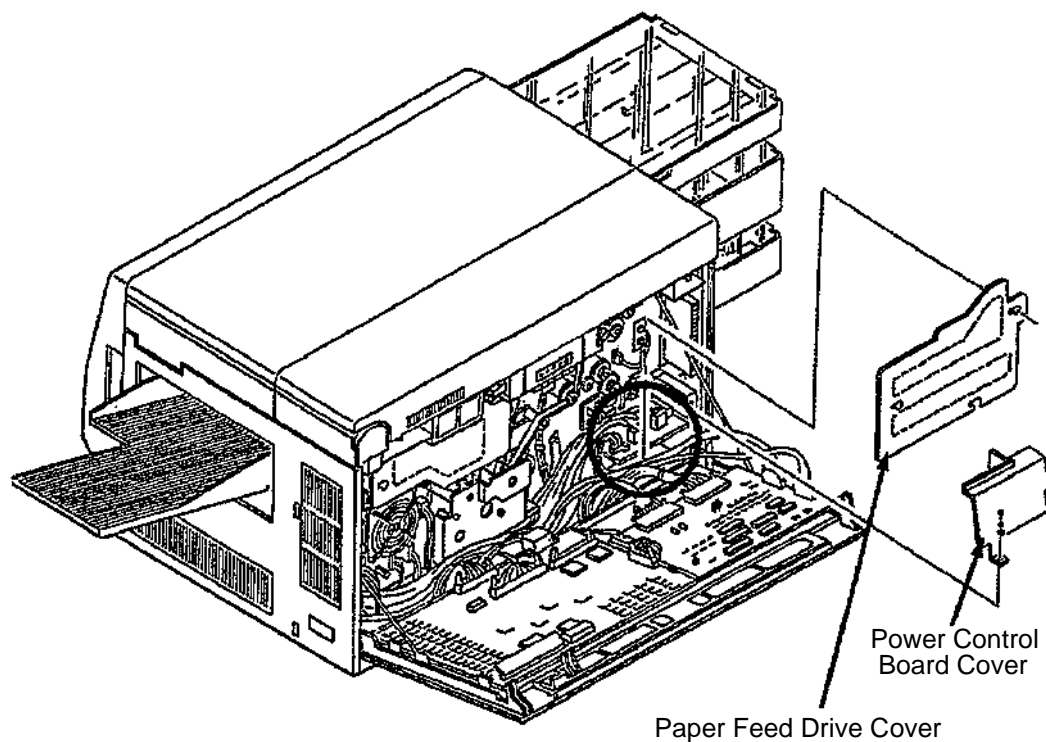
Power Control Board Removal

To remove the power control board:

- 1 Open the back cover.
- 2 Remove the paper feed drive cover (three screws).
- 3 Remove the power control board cover (one screw).
- 4 Disconnect CN9, CN10, CN11, CN12, CN13, and CN14.
- 5 Remove power control board (two screws).

Replacement Note:

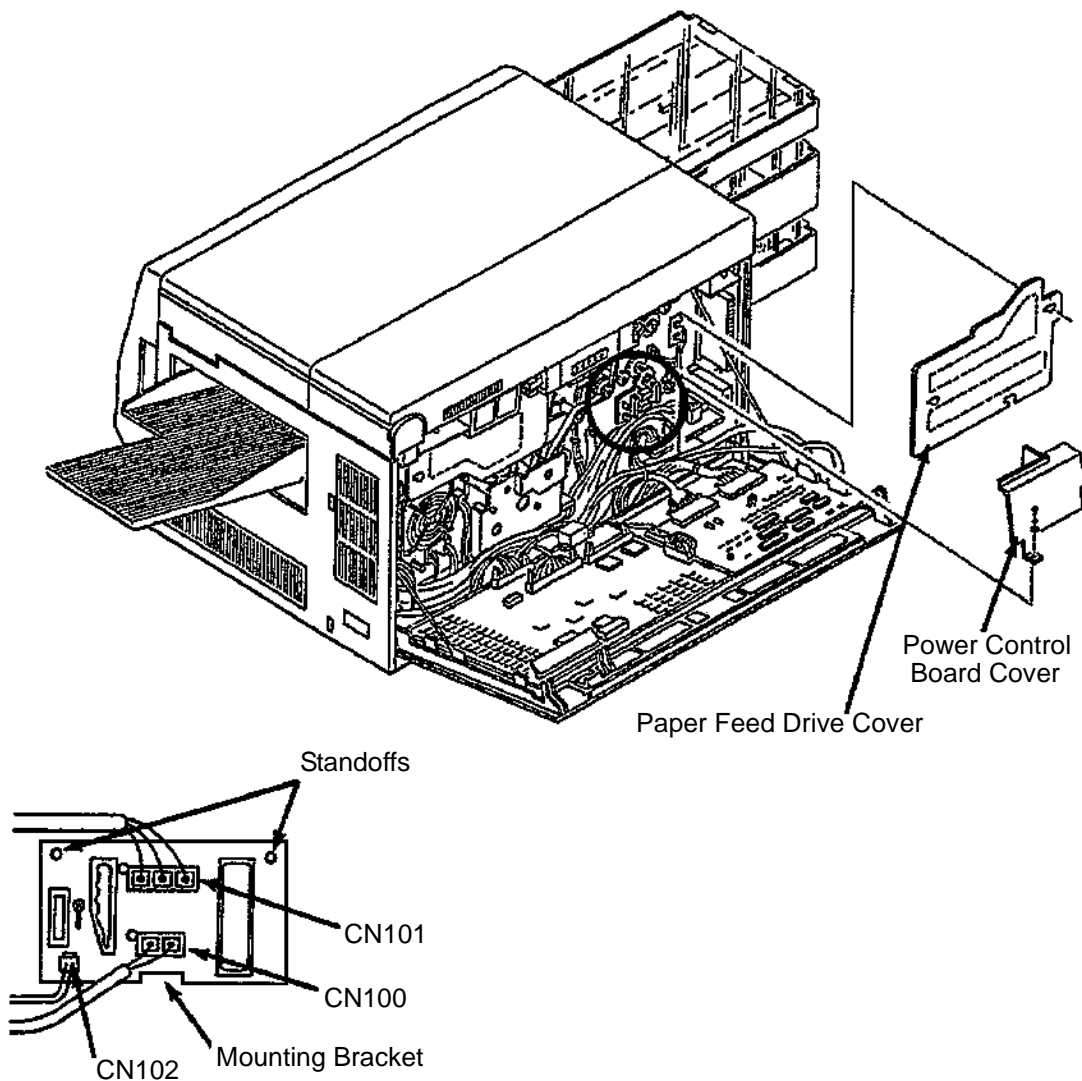
Be sure that the back of the board is mounted properly in the frame slots.



Jogging Motor Control Board Removal

To remove the jogging motor control board:

- 1 Open the back cover.
- 2 Remove the paper feed drive cover (three screws).
- 3 Remove the power control board cover (one screw).
- 4 Disconnect CN100, CN101, and CN102.
- 5 Disengage the board. To do this, pinch the two standoffs on the board.
- 6 Lift the board from its mounting bracket.



Jogging Motor Power Control Board Detail

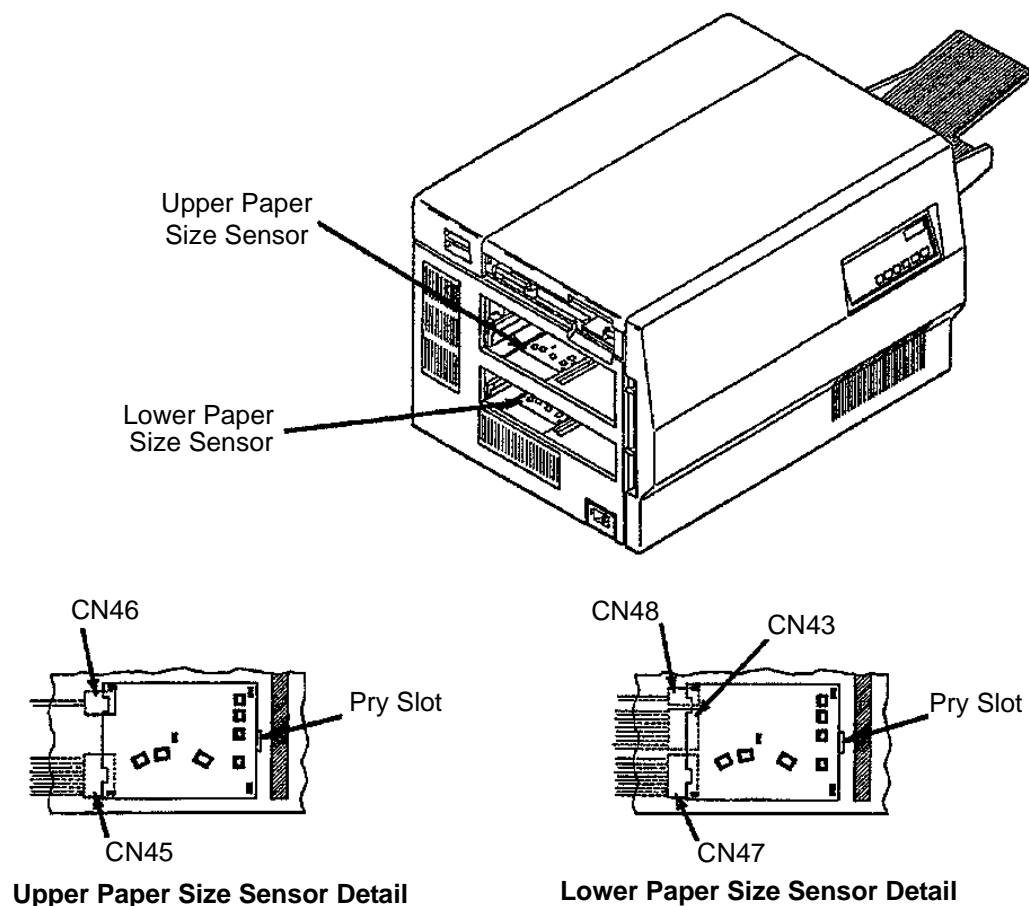
Upper or Lower Paper Size Sensor Removal

To remove the upper or lower paper size sensor:

- 1 Duplex only:** Remove the duplex tray.
- Remove the upper and lower paper cassettes.
- Using a small screwdriver, pry up the paper size sensor. Turn the sensor counterclockwise and lift up.
- For the upper paper size sensor, disconnect CN45 and CN46.
- For the lower paper size sensor, disconnect CN43, CN47, and CN48.

Note

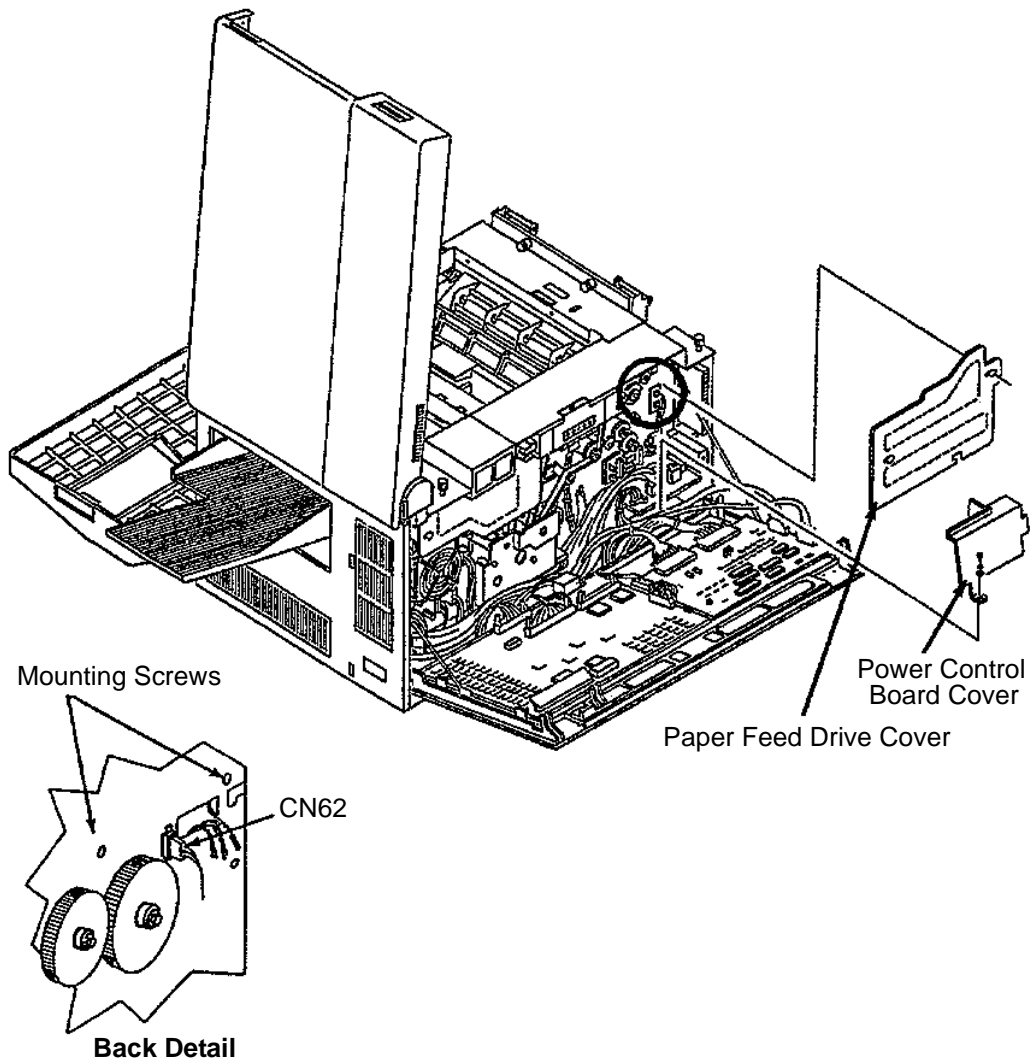
Be careful not to damage the cables when disconnecting



Upper Cassette Mount Removal

To remove the upper cassette mount:

- 1 Open the front, back, and top covers.
- 2 **Duplex only:** Remove the duplex tray.
- 3 Remove the upper and lower paper cassettes.
- 4 Remove the left side cover. (See [page 7-8.](#))
- 5 Remove the paper feed drive cover (three screws).
- 6 Remove the power control board cover (one screw).
- 7 From the back, remove the two screws holding the upper cassette mount in place.
- 8 Loosen the CN62 jack and pull it to the back of the printer.
- 9 Disconnect CN62.

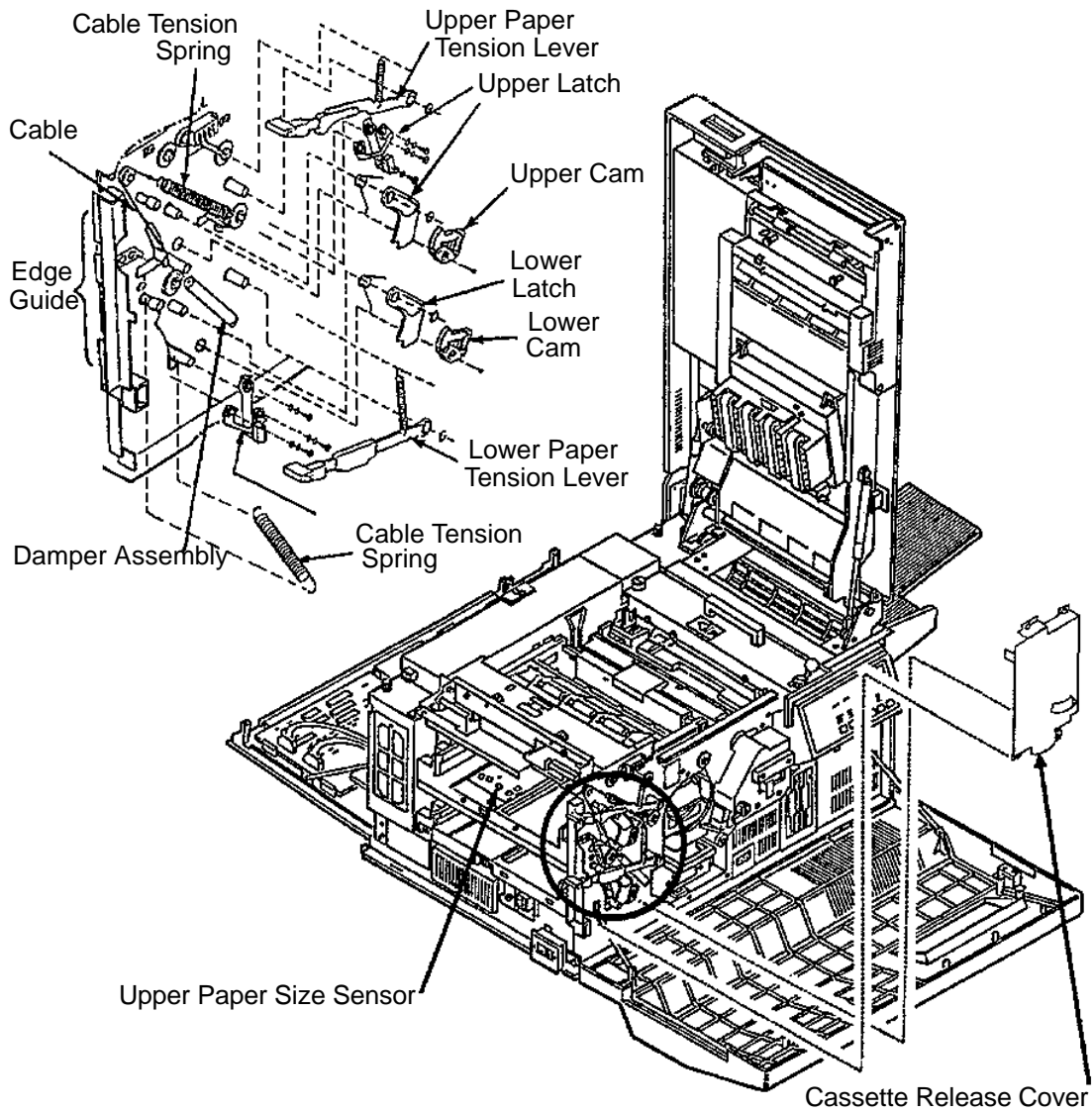


Upper Cassette Mount Removal

- 10** Remove the upper paper size sensor. (See [page 7-40](#).)
- 11** Remove the cassette release cover (two screws).
- 12** Remove the plastic guide on the vertical edge of the printer. Depress the tabs visible through the cassette housing. Gently turn it and lift from the printer.
- 13** For the tray releases:
 - Carefully release the tension spring cable from the pick pressure adjustment lever (only on the most recent versions of the printer).
 - Remove the spring and cable.
 - Remove the upper and lower levers (one spring and C-clip each).
 - Remove the upper and lower cams (one screw each).
 - Remove the upper and lower latches (one spring and C-clip each).

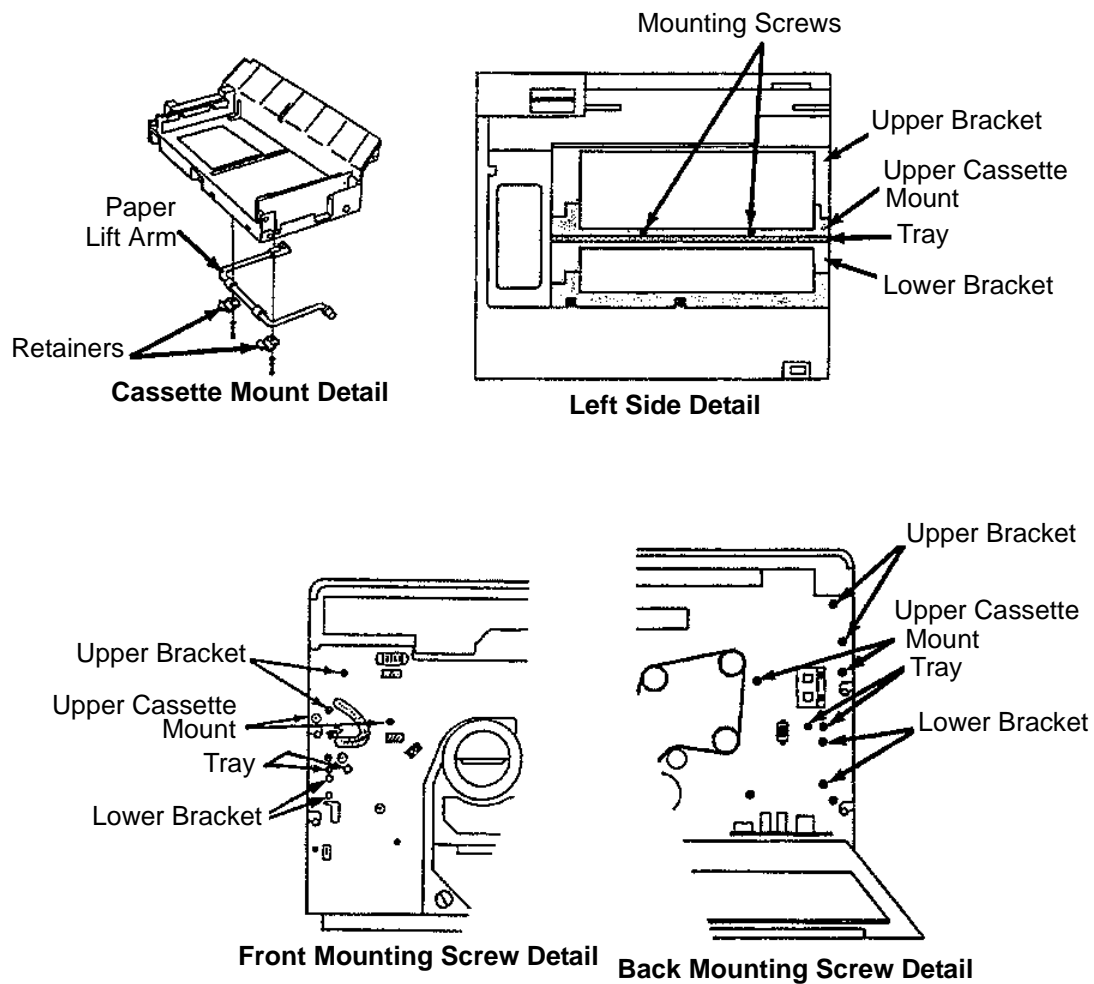
Upper Cassette Mount Removal

14 Disengage the top of the damper assembly. Push it to the right out of the way.



Upper Cassette Mount Removal

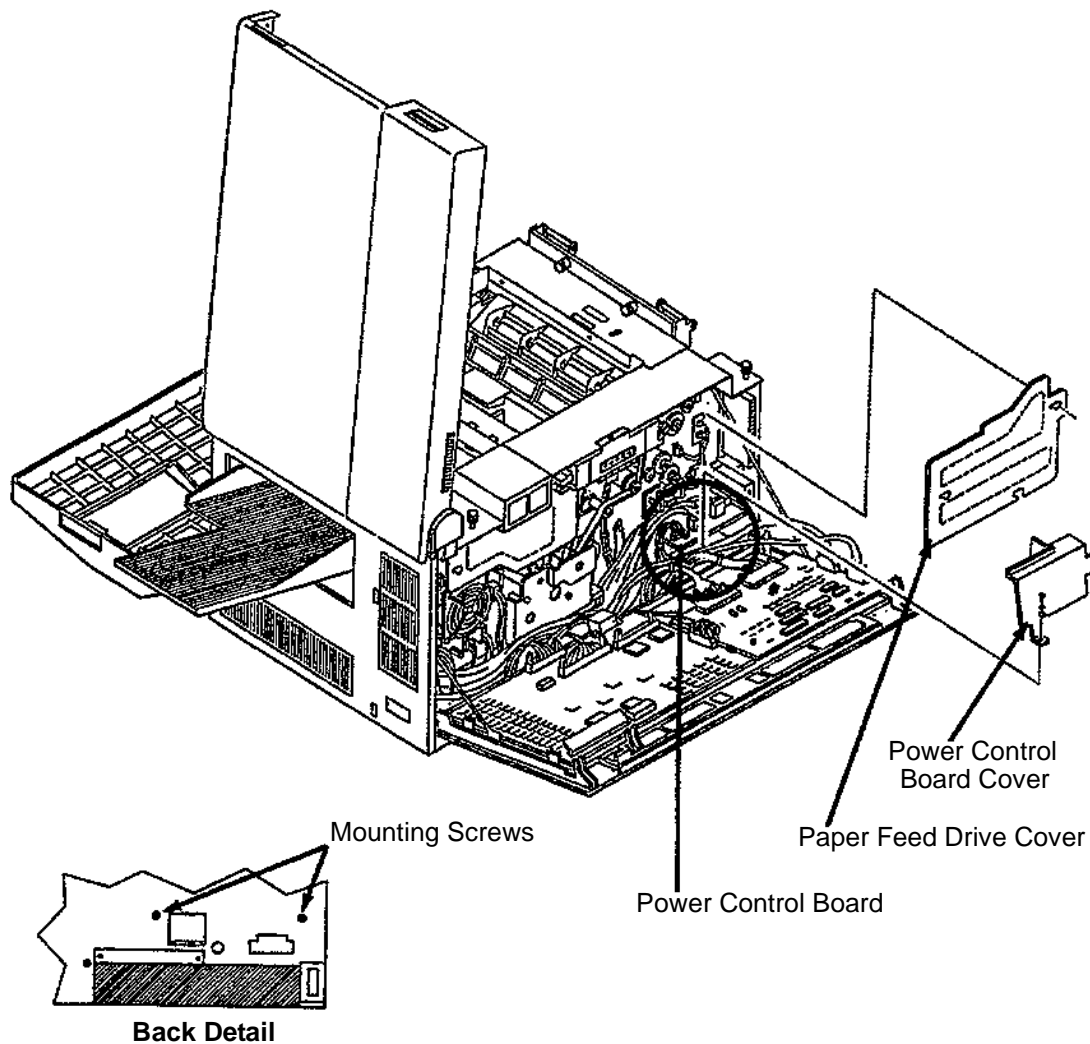
- 15** Remove the lower bracket (four screws; two front and two back).
- 16** Remove the tray (four screws; two front and two back).
- 17** Remove the upper tray lift arm (two screws with two plastic retainers).
- 18** Remove the upper bracket (four screws; two front and two back).
- 19** Remove the screws holding the upper cassette mount in place (two front and two side).
- 20** Pull the upper cassette mount from its front and back mounting pins.
- 21** Rotate the upper cassette mount upwards and out of the printer.



Lower Cassette Mount Removal

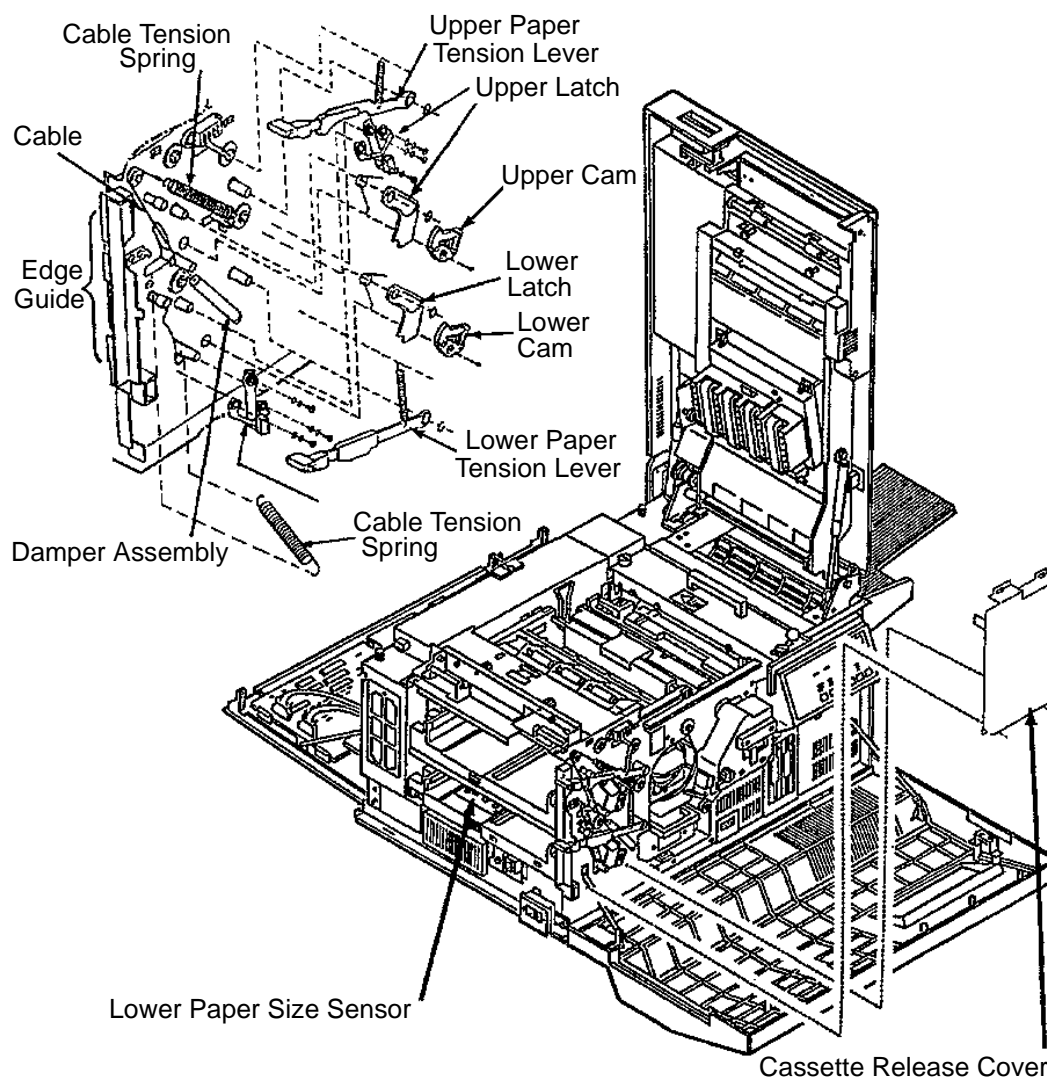
To remove the lower cassette mount:

- 1 Open the front, back, and top covers.
- 2 **Duplex only:** Remove the duplex tray.
- 3 Remove the upper and lower paper cassettes.
- 4 Remove the left side cover. (See [page 7-8.](#))
- 5 Remove the paper feed drive cover (three screws).
- 6 Remove the power control board cover (one screw).
- 7 Remove the power control board. (See [page 7-38.](#))
- 8 From the back, remove the two screws holding the lower cassette mount in place.



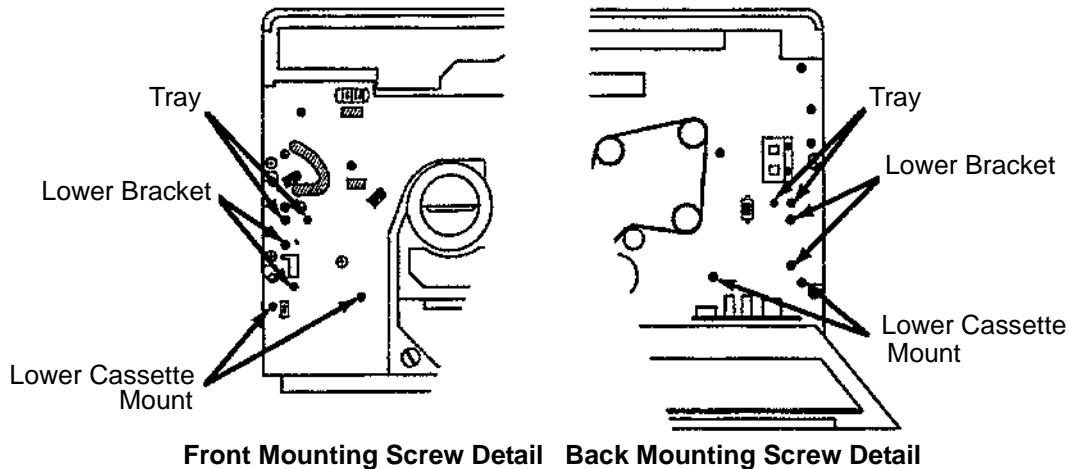
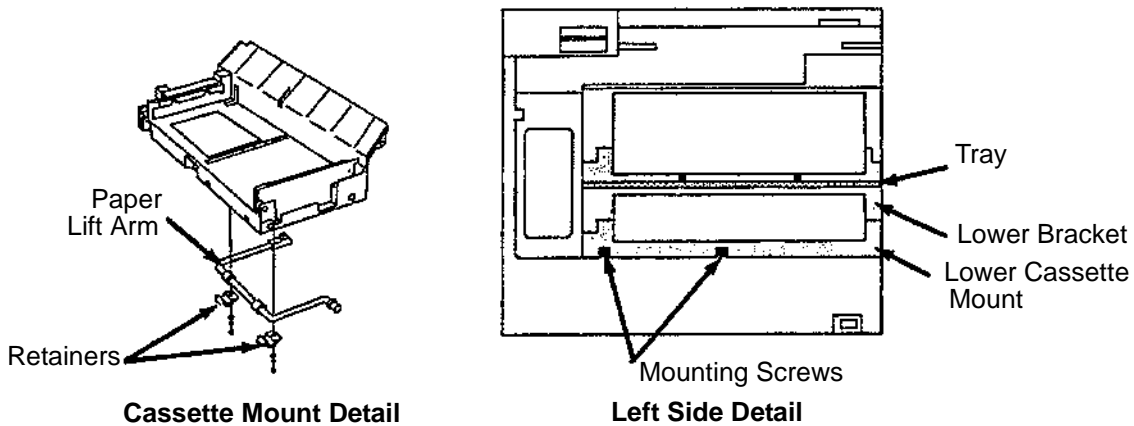
Lower Cassette Mount Removal

- 9 Remove the lower paper size sensor. (See [page 7-40.](#))
- 10 Remove the cassette release cover (two screws).
- 11 Remove the plastic guide on the vertical edge of the printer. Depress the tabs visible through the cassette housing. Gently turn it and lift from the printer.
- 12 For the lower tray release:
 - Carefully release the tension spring cable from the pick pressure adjustment lever (only on the most recent versions of the printer).
 - Remove the spring and cable.
 - Remove the lever (one spring and C-clip).
 - Remove the cam (one screw).
 - Remove the latch (one spring and C-clip).



Lower Cassette Mount Removal

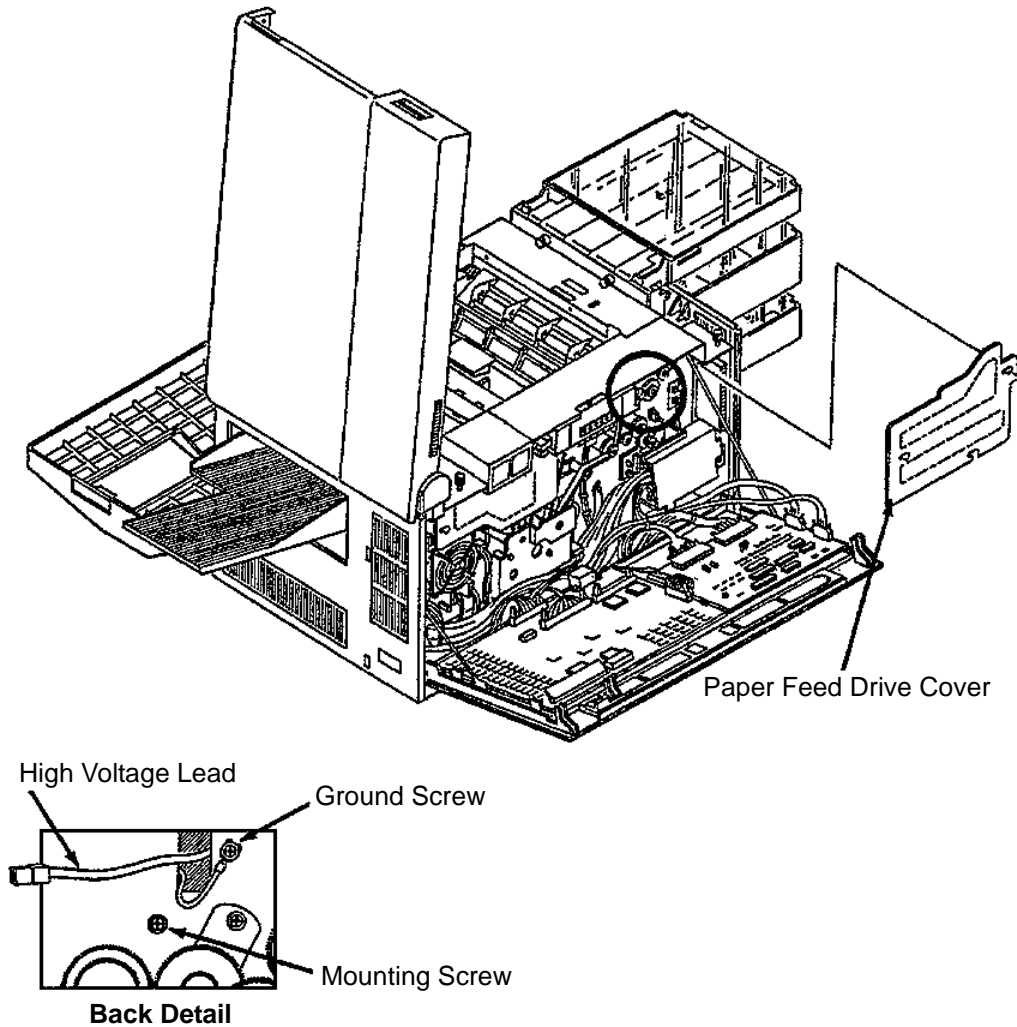
- 13** Remove the lower bracket (four screws; two front and two back).
- 14** Remove the tray (four screws, two front and two back)
- 15** Remove the AC power supply. (See [page 7-29.](#))
- 16** Remove the lower tray lift arm (two screws with two plastic retainers).
- 17** Remove the screws holding the lower cassette mount in place (two front and two side).
- 18** Pull the lower cassette mount from its front and back mounting pins.
- 19** Rotate the lower cassette mount upwards and out of the printer.



Upper Paper Guide Removal

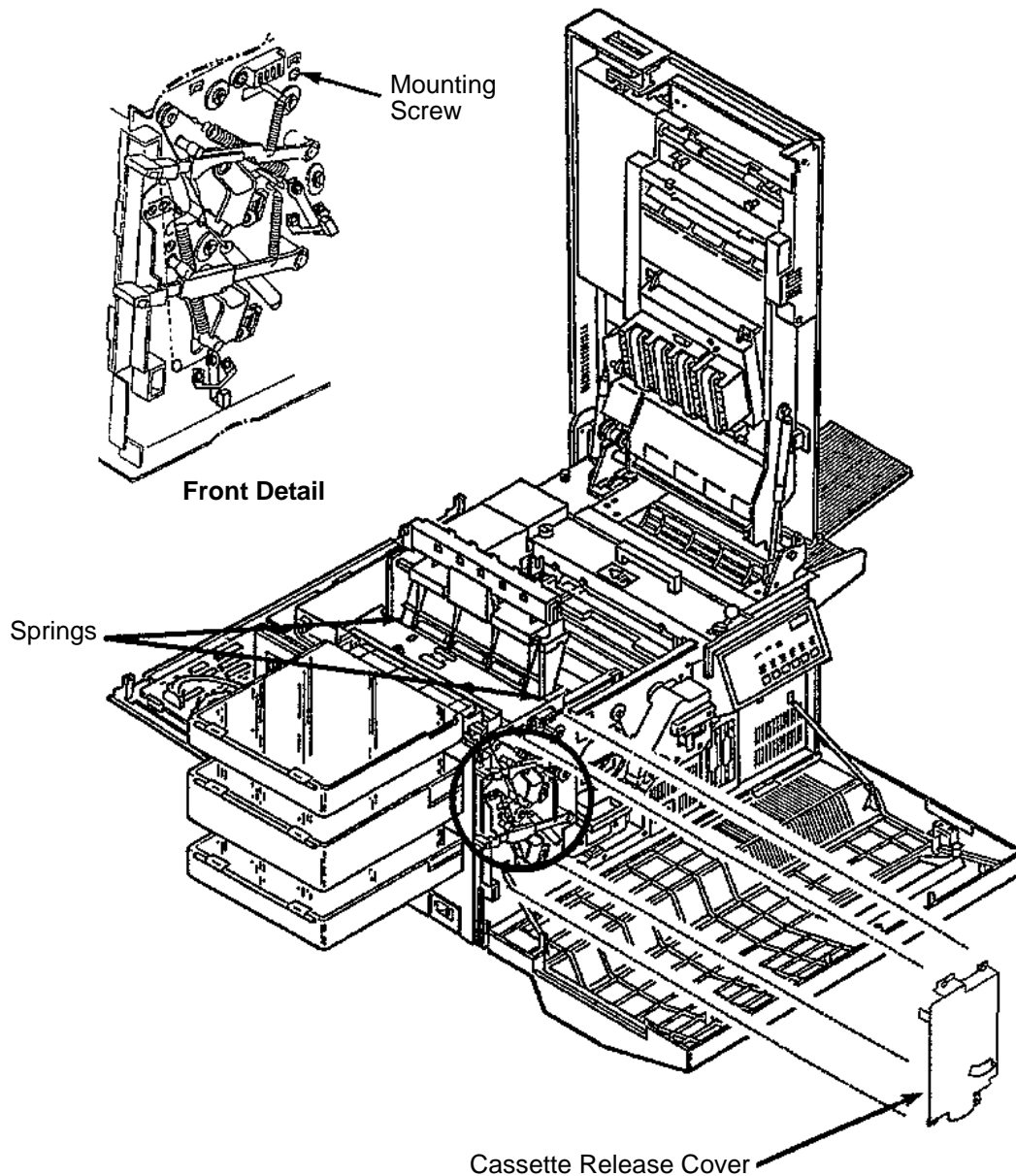
To remove the upper paper guide:

- 1 Open the front, back, and top covers.
- 2 Remove the paper feed drive cover (three screws).
- 3 Disconnect the transfer corona high voltage lead from the HVPS.
- 4 Disconnect the ground screw for the transfer corona.



Upper Paper Guide Removal

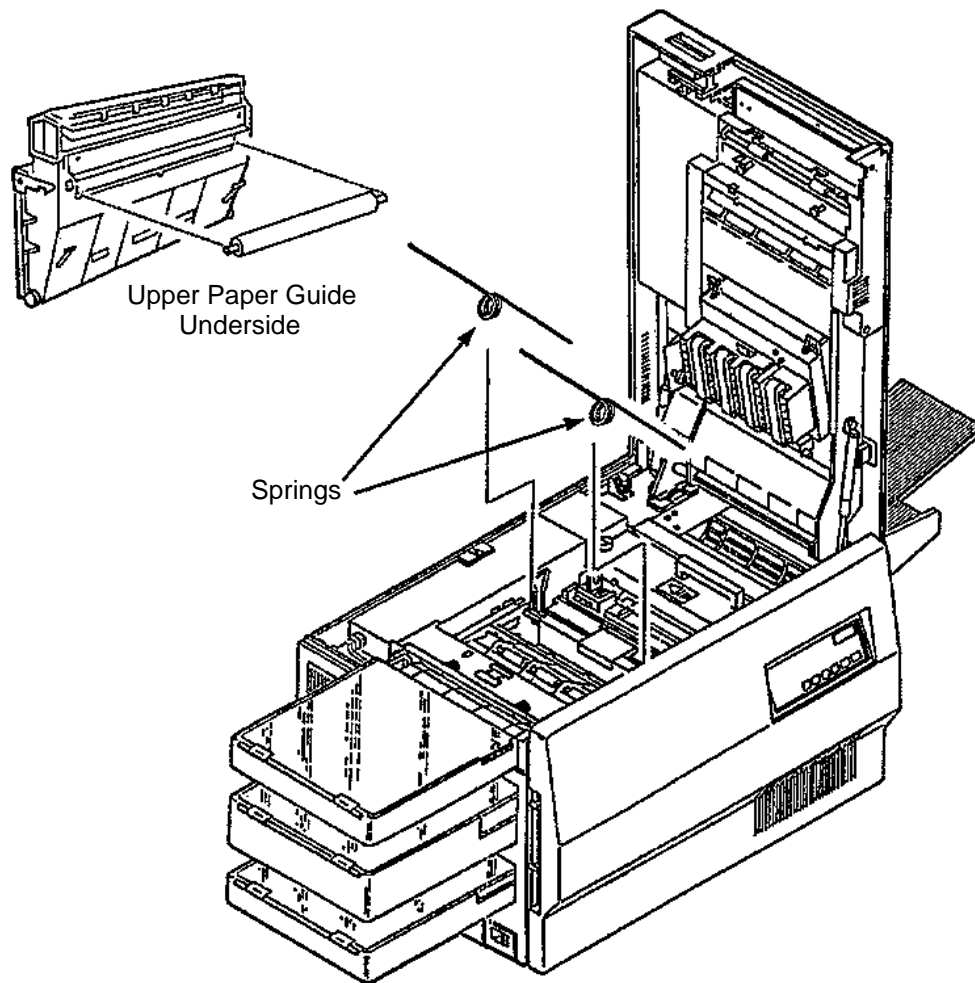
- 5 Remove the cassette release cover (two screws).
- 6 Raise the upper paper guide.
- 7 Remove the back screw holding the upper paper guide in place.
- 8 Remove the front screw holding the upper paper guide in place.
- 9 Release the two springs at the base of the upper paper guide.
- 10 Lift the upper paper guide out of the printer.



Upper Paper Guide Roller Removal

To remove the upper paper guide roller:

- 1 Open the top cover.
- 2 Remove the two springs at each end of the roller. To do this, press down gently on the end of the spring and move it out from under the plastic.
- 3 Raise the upper paper guide.
- 4 Remove the roller and bearings from the underside of the upper paper guide.

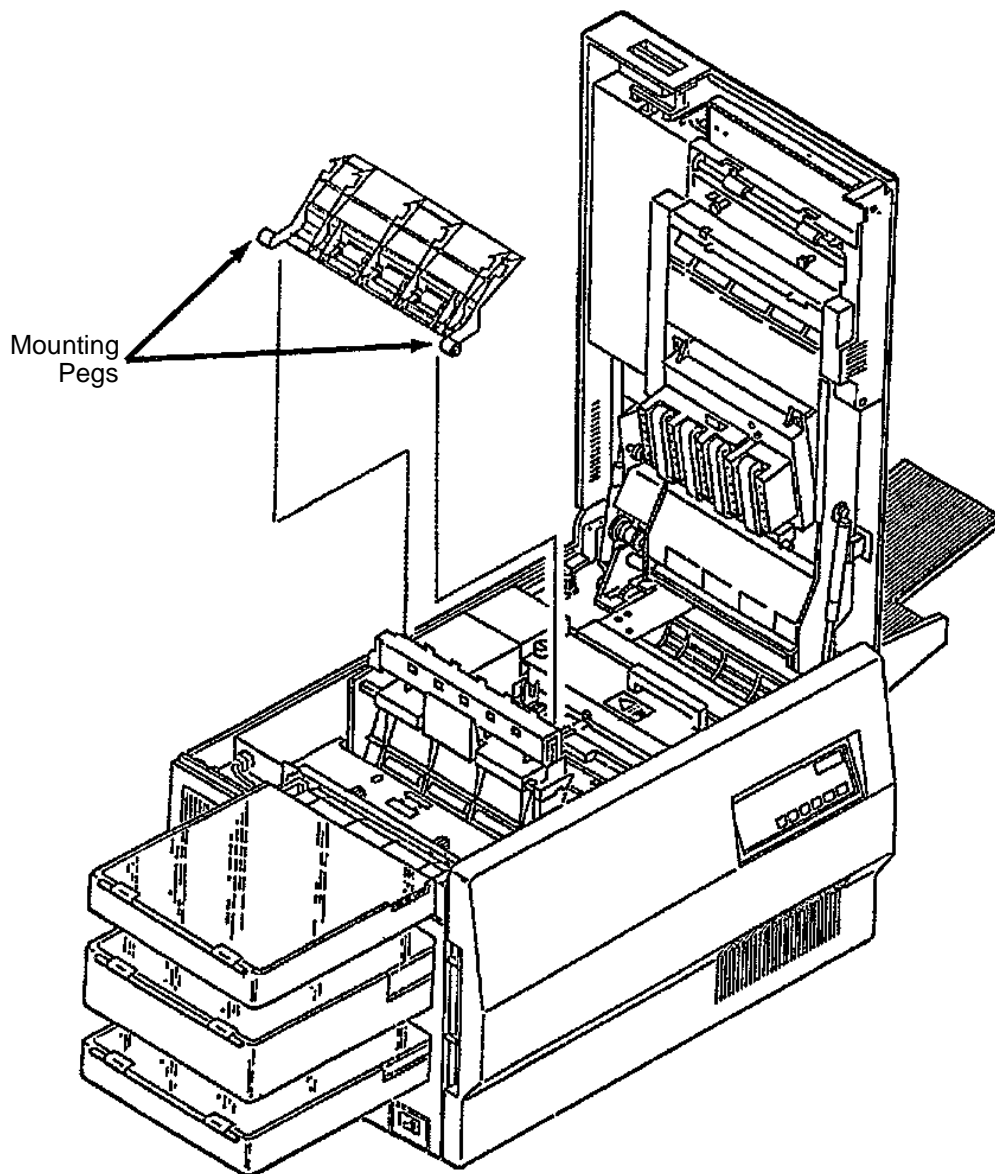


Lower Paper Guide Removal

To remove the lower paper guide:

- 1 Open the top cover.
- 2 Raise the upper paper guide.
- 3 Raise the lower paper guide slightly.
- 4 Push the base of the lower paper guide toward the back of the printer until the front mounting peg is free.
- 5 Lift the lower paper guide out of the printer.

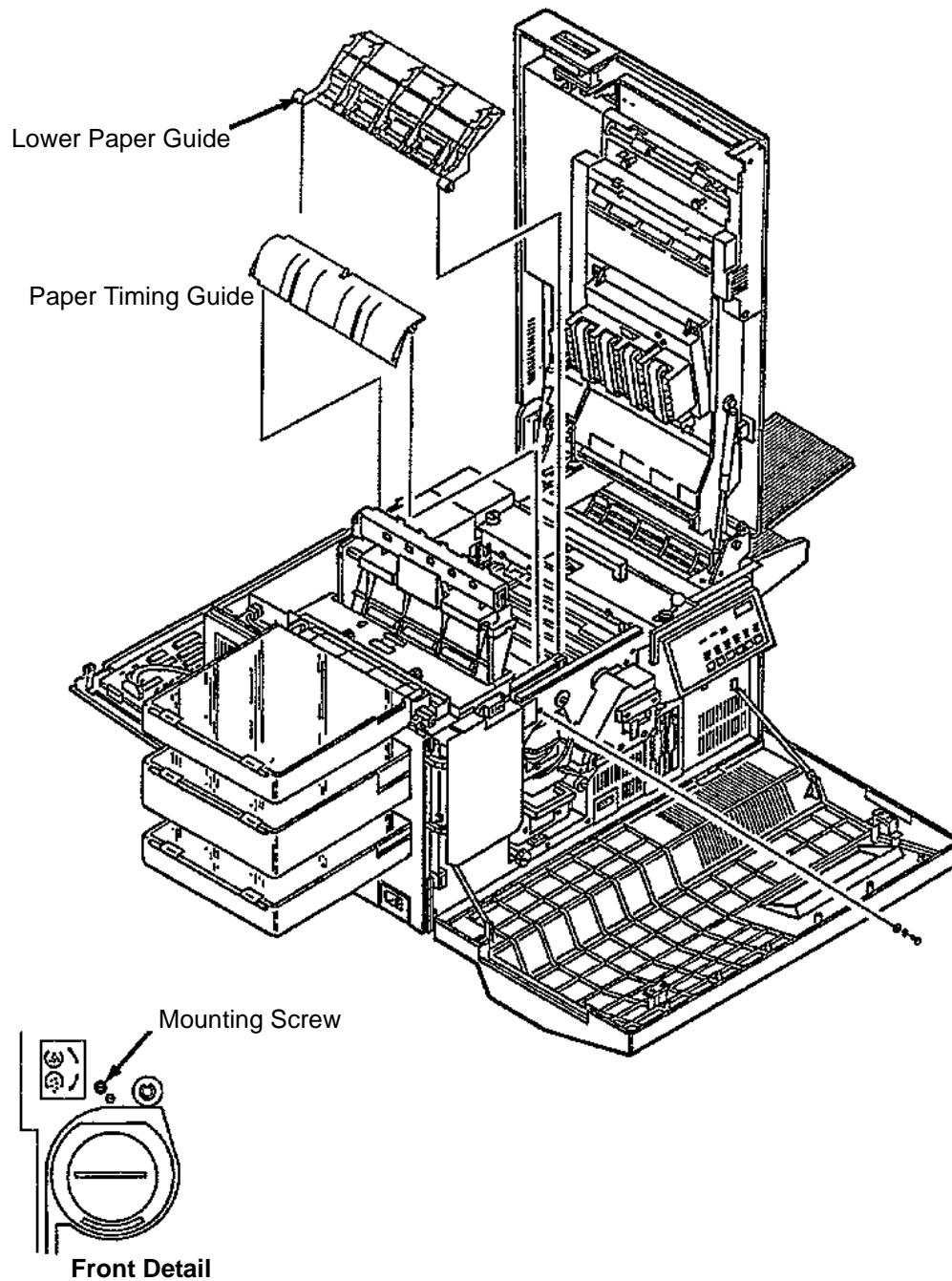
Note: Use caution. This piece is made of plastic and can easily break if mishandled.



Paper Timing Guide Removal

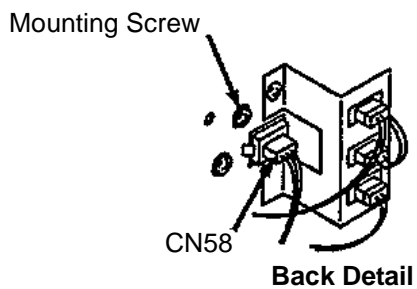
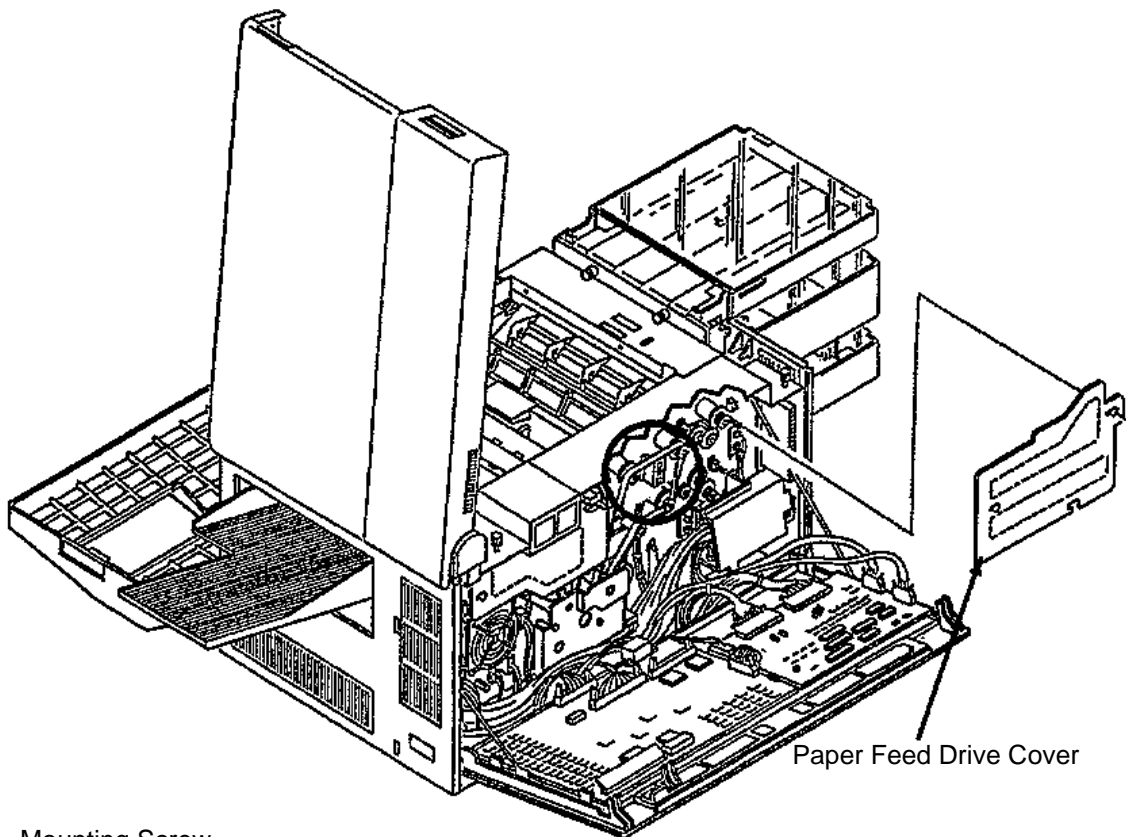
To remove the paper timing guide:

- 1 Open the front, back, and top covers.
- 2 Raise the upper paper guide.
- 3 Remove the lower paper guide. (See [page 7-51.](#))



Paper Timing Guide Removal

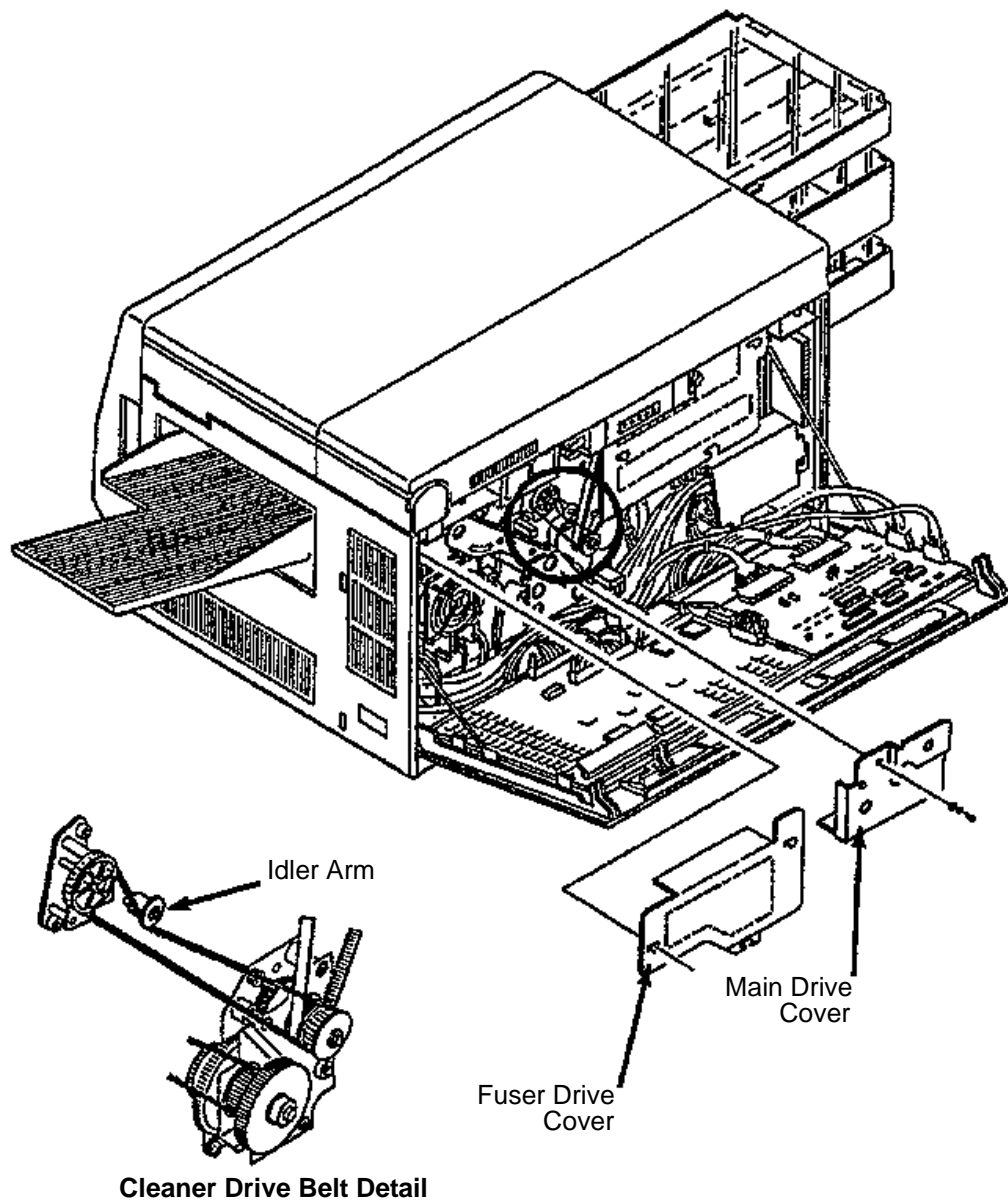
- 4 Remove the paper feed drive cover (three screws).
- 5 Remove the back screw holding the paper timing guide in place. Remove the paper timing guide.
- 6 Disconnect CN58.



Cleaner Drive Belt Removal

To remove the cleaner drive belt:

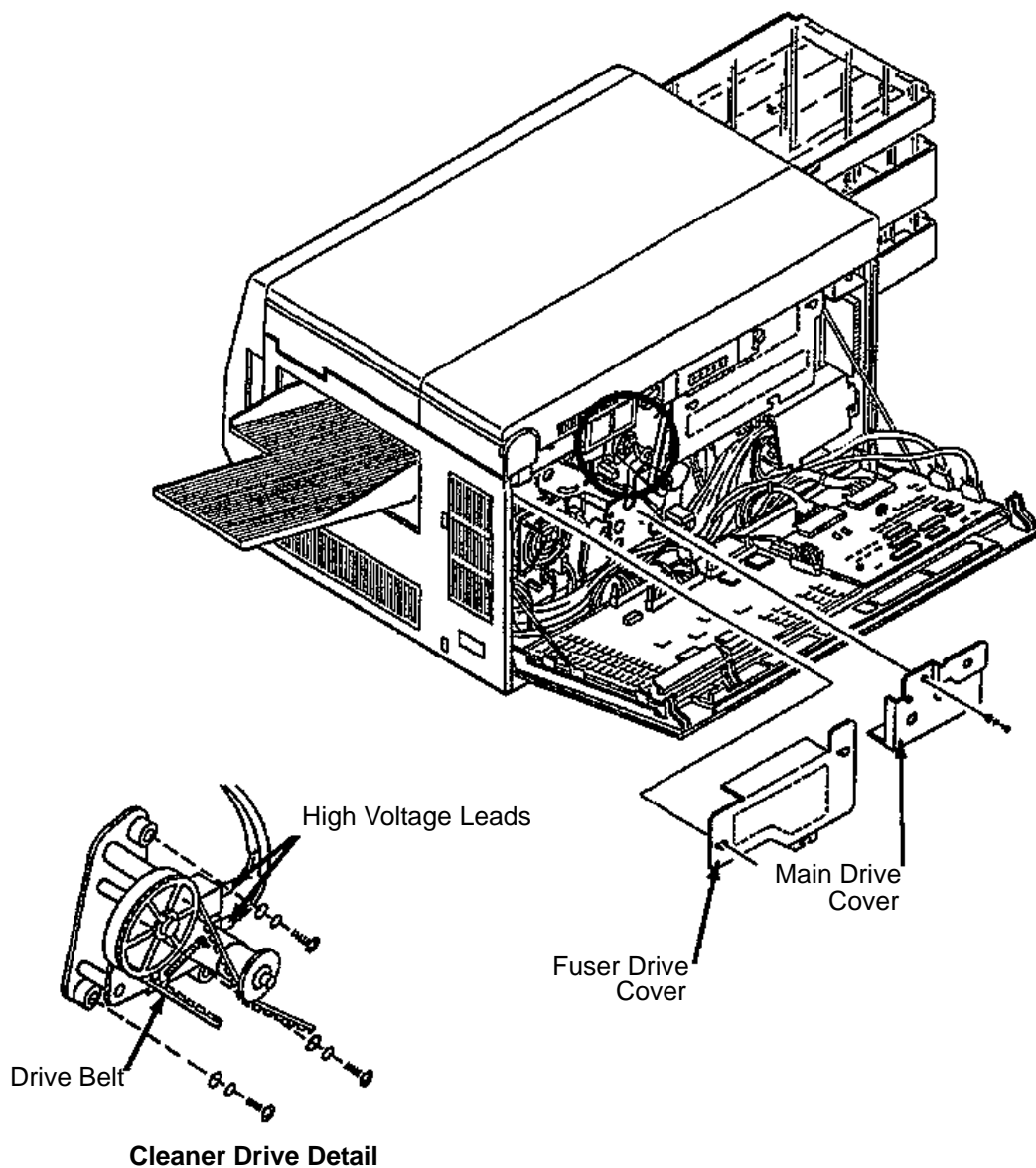
- 1 Open the back cover.
- 2 Remove the fuser drive cover (three screws).
- 3 Remove the main drive cover (one screw).
- 4 Lift the idler arm and slide the cleaner drive belt off the gear.



Cleaner Drive Removal

To remove the cleaner drive:

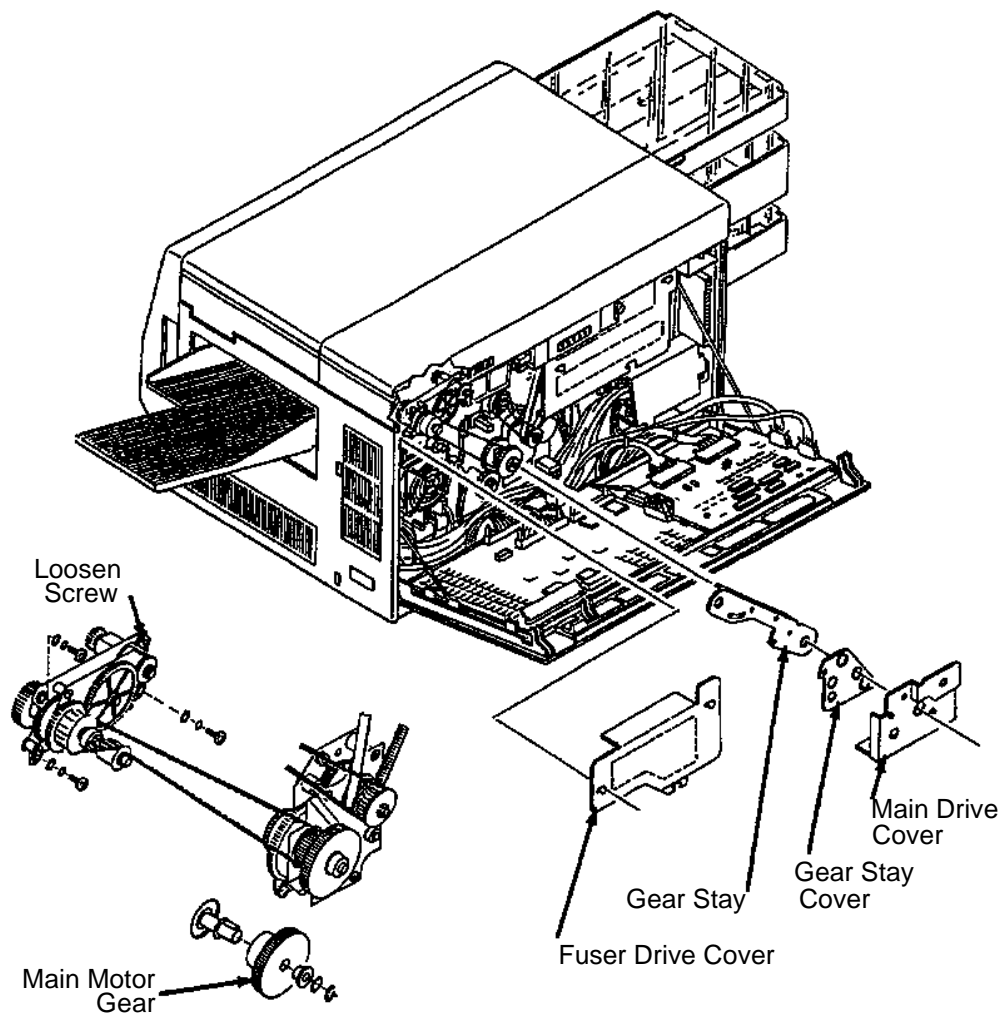
- 1 Open the back cover.
- 2 Remove the fuser drive cover (three screws).
- 3 Remove the main drive cover (one screw).
- 4 Remove the cleaner drive belt. (See [page 7-54.](#))
- 5 Remove the two high voltage leads.
- 6 Remove the cleaner drive (three screws).



Fuser Drive Belt Removal

To remove the fuser drive belt:

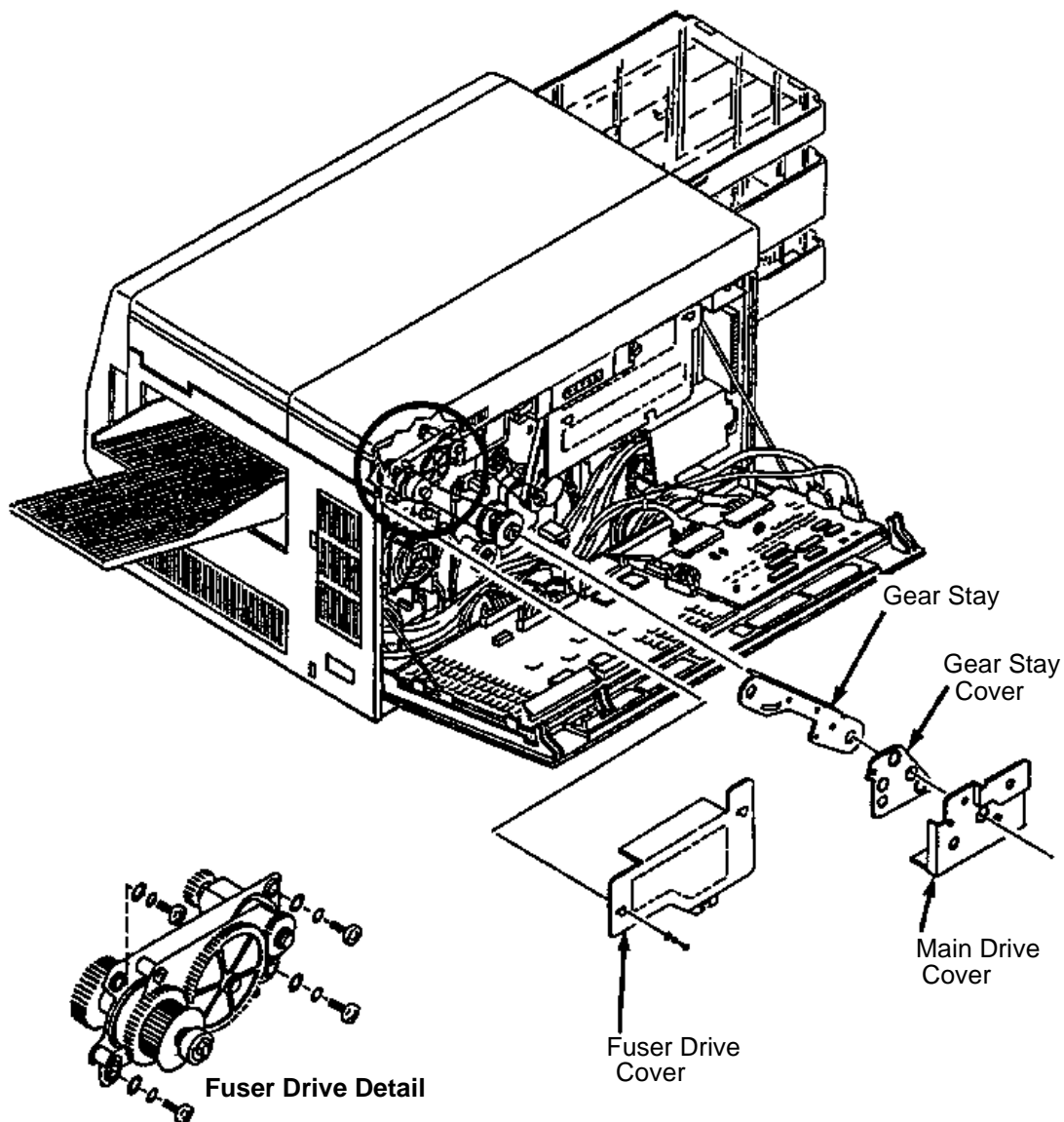
- 1 Open the back cover.
- 2 Remove the fuser drive cover (three screws).
- 3 Remove the main drive cover (one screw).
- 4 Remove the gear stay cover (one screw).
- 5 Remove the gear stay (three screws).
- 6 Remove the main drive gear and bearing (single C-clip).
- 7 Remove the single upper left screw and the two lower screws holding the fuser drive in place.
- 8 Loosen the upper right screw for the fuser drive and pivot the drive down.
- 9 Slide the fuser drive belt off the gear.



Fuser Drive Removal

To remove the fuser drive:

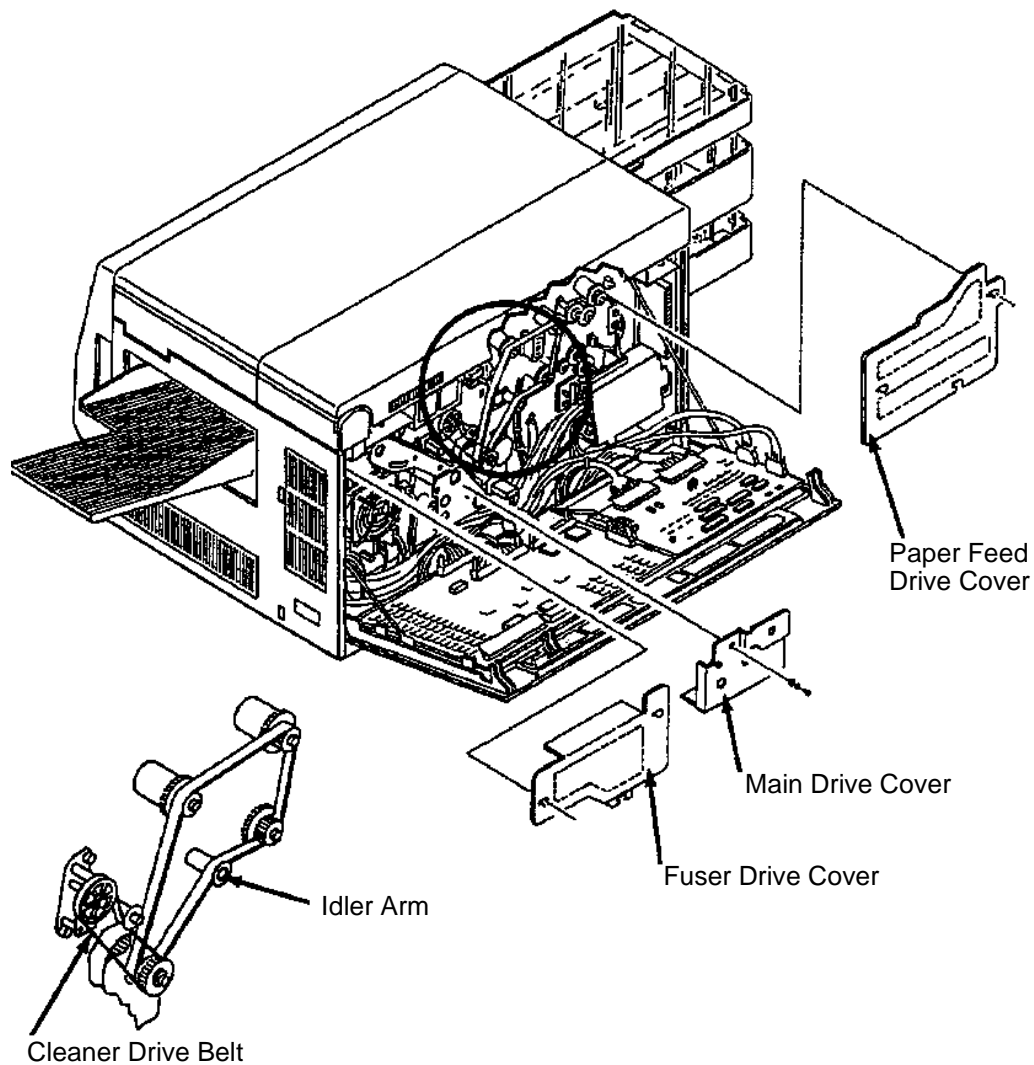
- 1 Open the back cover.
- 2 Remove the fuser drive cover (three screws).
- 3 Remove the main drive cover (one screw).
- 4 Remove the gear stay cover (one screw).
- 5 Remove the gear stay (three screws).
- 6 Remove the fuser drive belt. (See [page 7-56.](#))
- 7 Remove the fuser drive (four screws).



Paper Feed Drive Belt Removal

To remove the paper feed drive belt:

- 1 Open the back cover.
- 2 Remove the fuser drive cover (three screws).
- 3 Remove the paper feed drive cover (three screws).
- 4 Remove the main drive cover (one screw).
- 5 Remove the cleaner drive belt. (See [page 7-54.](#))
- 6 Push down on the idler arm and slide the paper feed drive belt off the gear.



Paper Feed Drive Belt Detail

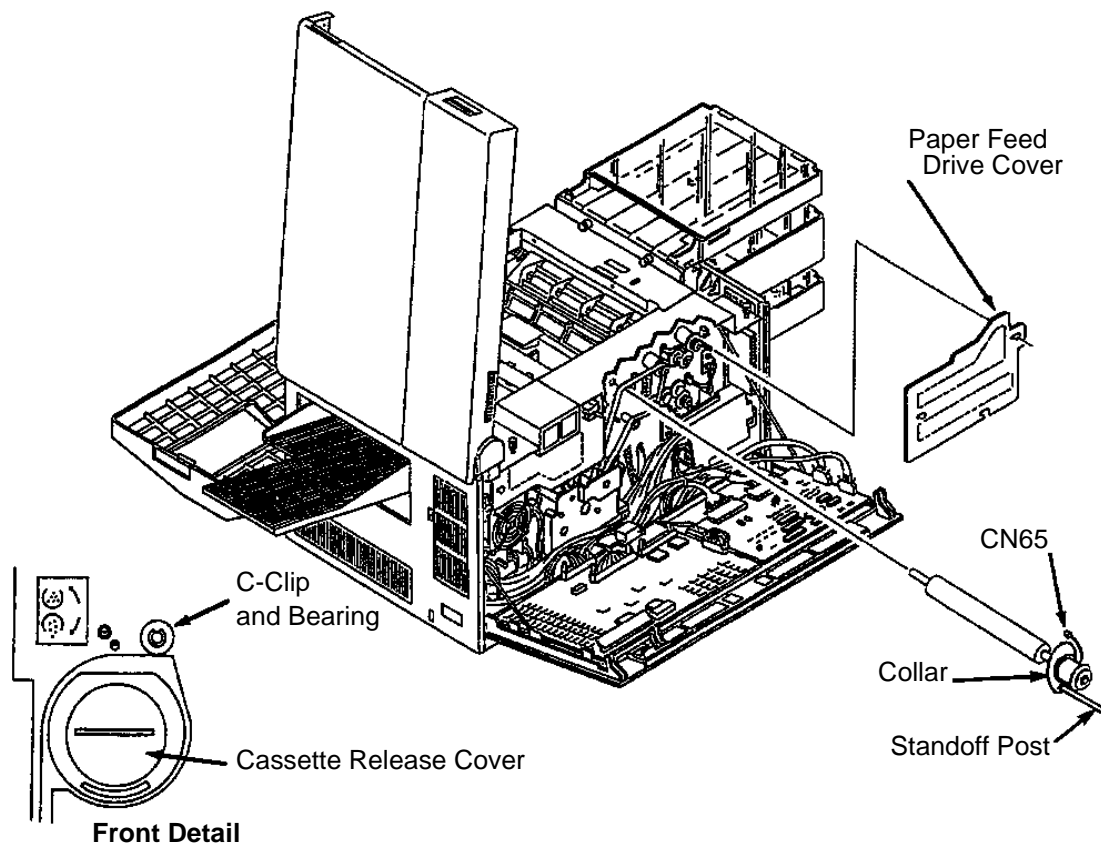
Paper Timing Roller Removal

To remove the paper timing roller:

- 1 Open the front, back, and top covers.
- 2 Raise the upper paper guide.
- 3 Remove the photoconductor and place it in its protective bag.
- 4 Remove the paper feed drive cover (three screws).
- 5 Remove the paper feed drive belt from the paper timing roller gear.
- 6 Disconnect CN65.
- 7 Unscrew the standoff post from the collar surrounding the end of the roller.
- 8 Remove the front C-clip and bearing.
- 9 Slide the paper timing roller out the back of the printer.

Replacement Notes:

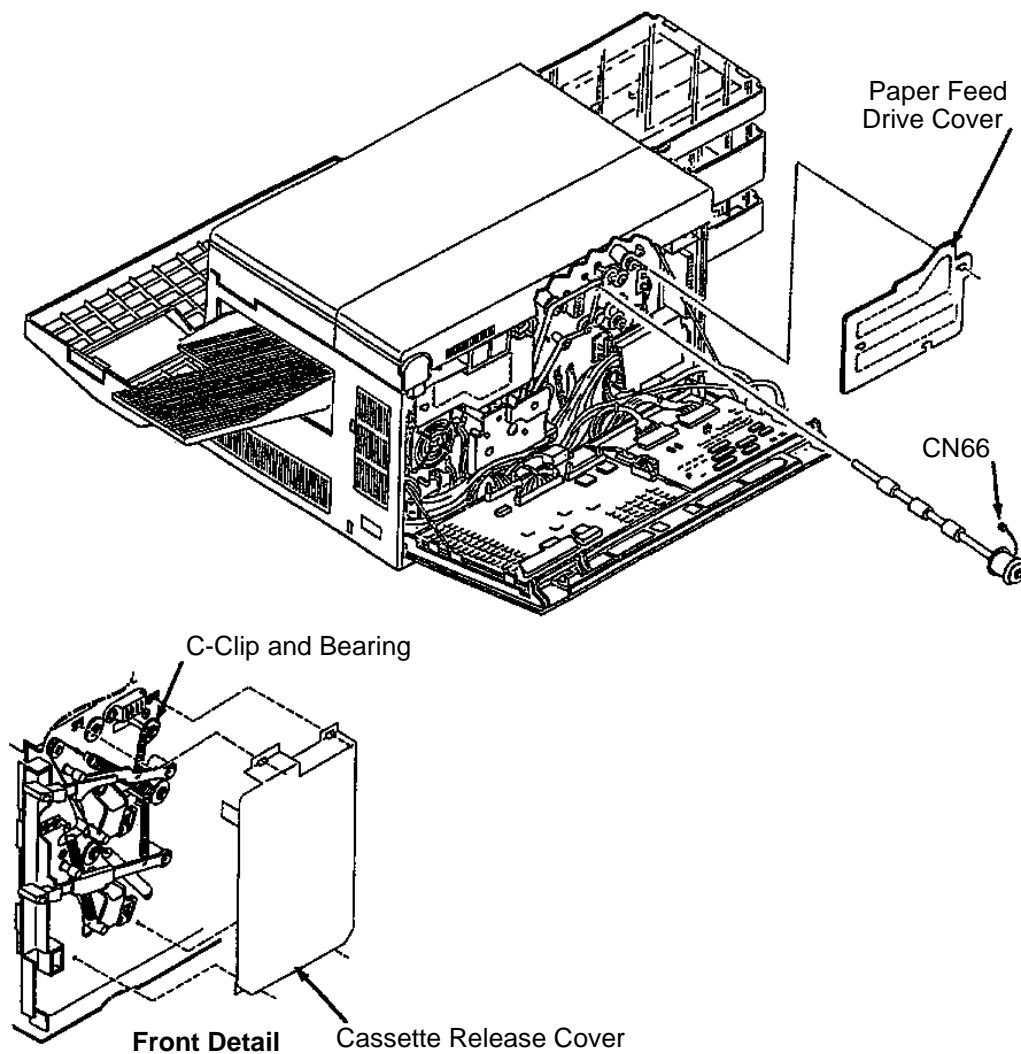
- Reinstall the original collar and standoff post with any new paper timing roller.
- Be sure to align all of the guide pins or the C-clip will not fit correctly.



Upper Feed Roller Removal

To remove the upper feed roller:

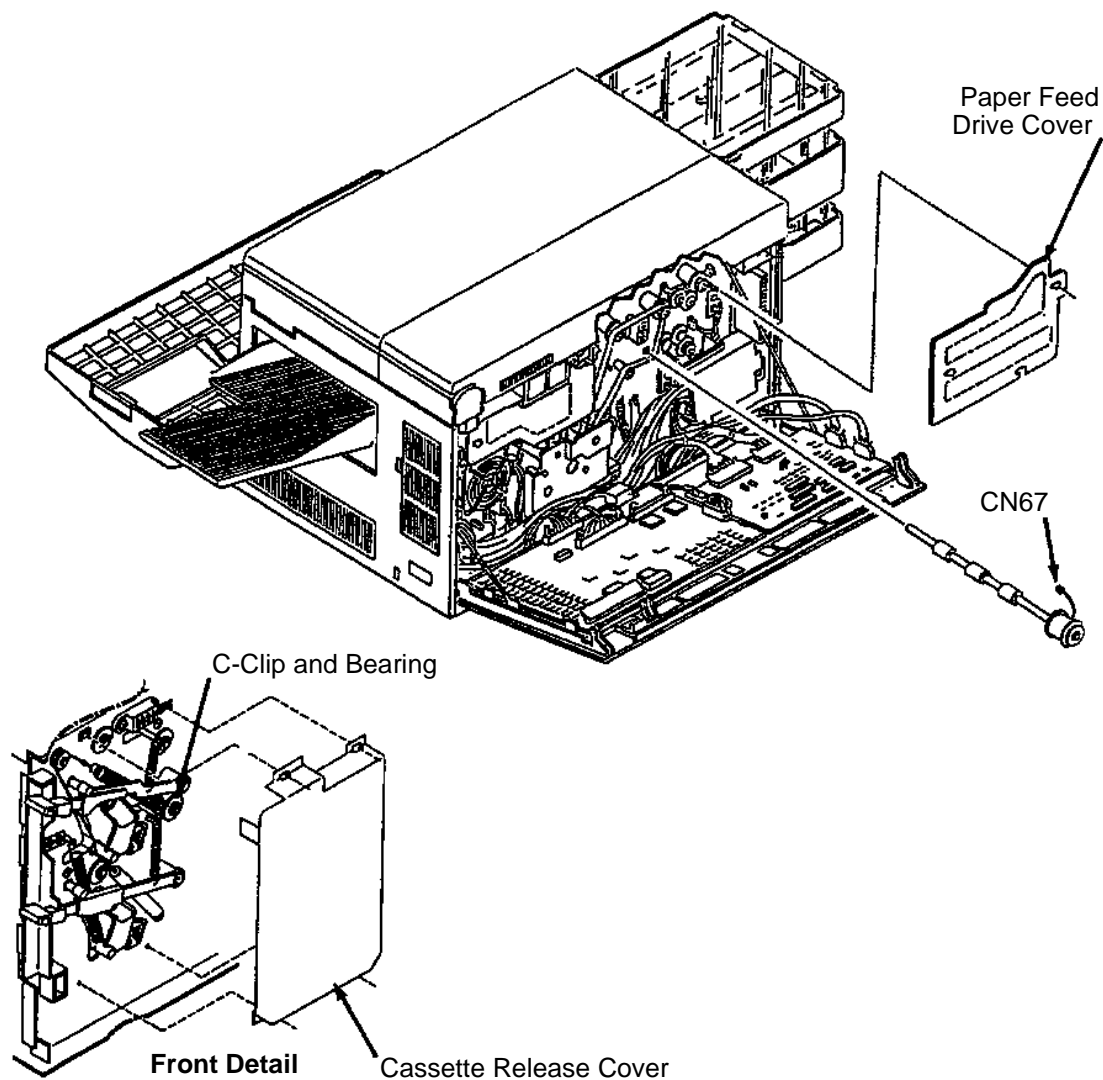
- 1 Open the front and back covers.
- 2 Remove the paper feed drive cover (three screws).
- 3 Disconnect CN66.
- 4 Remove the paper feed drive belt from the upper feed roller gear.
- 5 Remove the cassette release cover (two screws).
- 6 Remove the front C-clip and bearing.
- 7 Slide the upper feed roller out the back of the printer.



Lower Feed Roller Removal

To remove the lower feed roller:

- 1 Open the front and back covers.
- 2 Remove the paper feed drive cover (three screws).
- 3 Disconnect CN67.
- 4 Remove the paper feed drive belt from the lower feed roller gear.
- 5 Remove the cassette release cover (two screws).
- 6 Remove the front C-clip and bearing.
- 7 Slide the lower feed roller out the back of the printer.

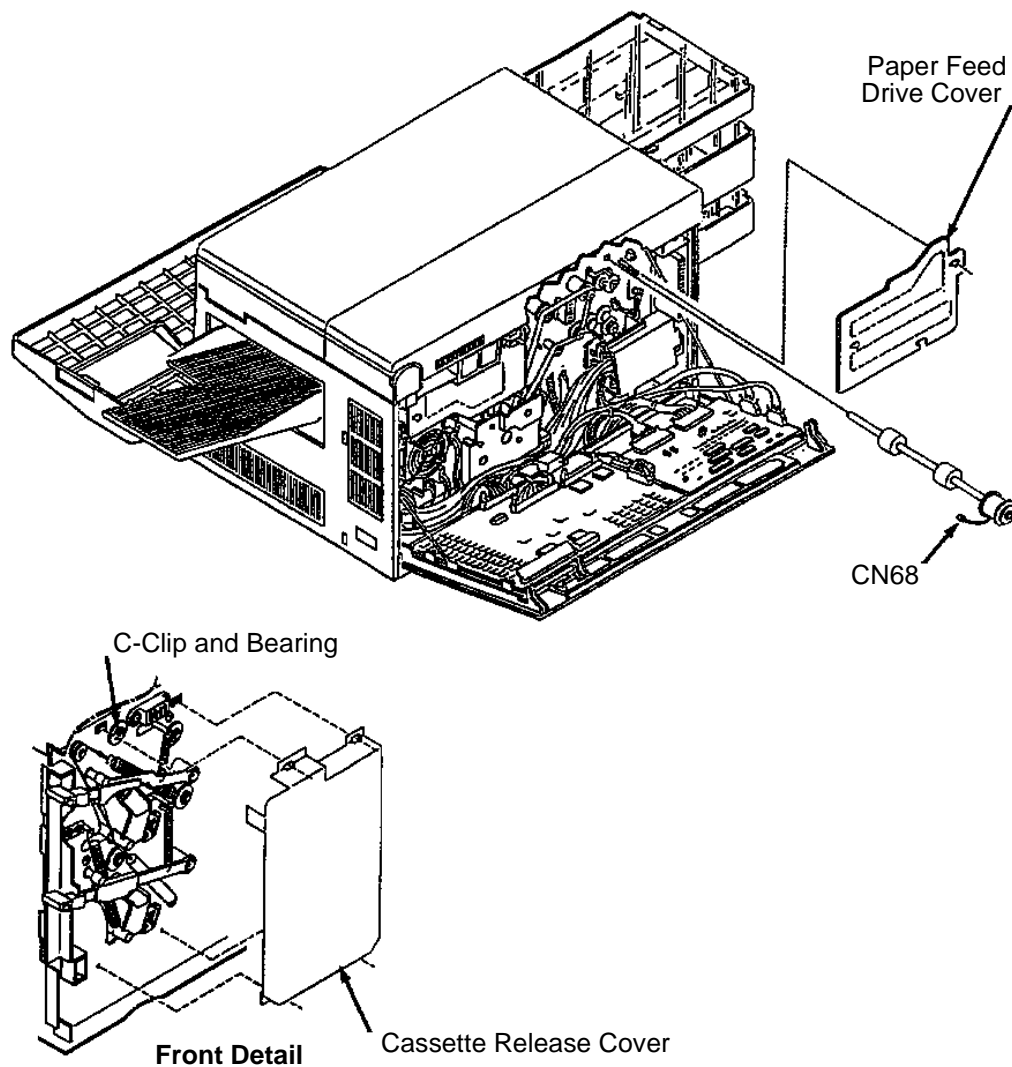


Upper Pick-Up Roller Removal

To remove the upper pick-up roller:

- 1 Open the front and back covers.
- 2 Remove the paper feed drive cover (three screws).
- 3 Disconnect CN68.
- 4 Remove the cassette release cover (two screws).
- 5 Remove the front C-clip and bearing.
- 6 Slide the upper pick-up roller out the back of the printer.

Note: You may need to remove the EMI grounding plate.

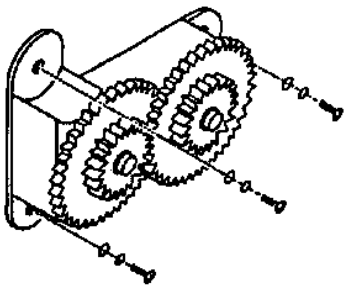
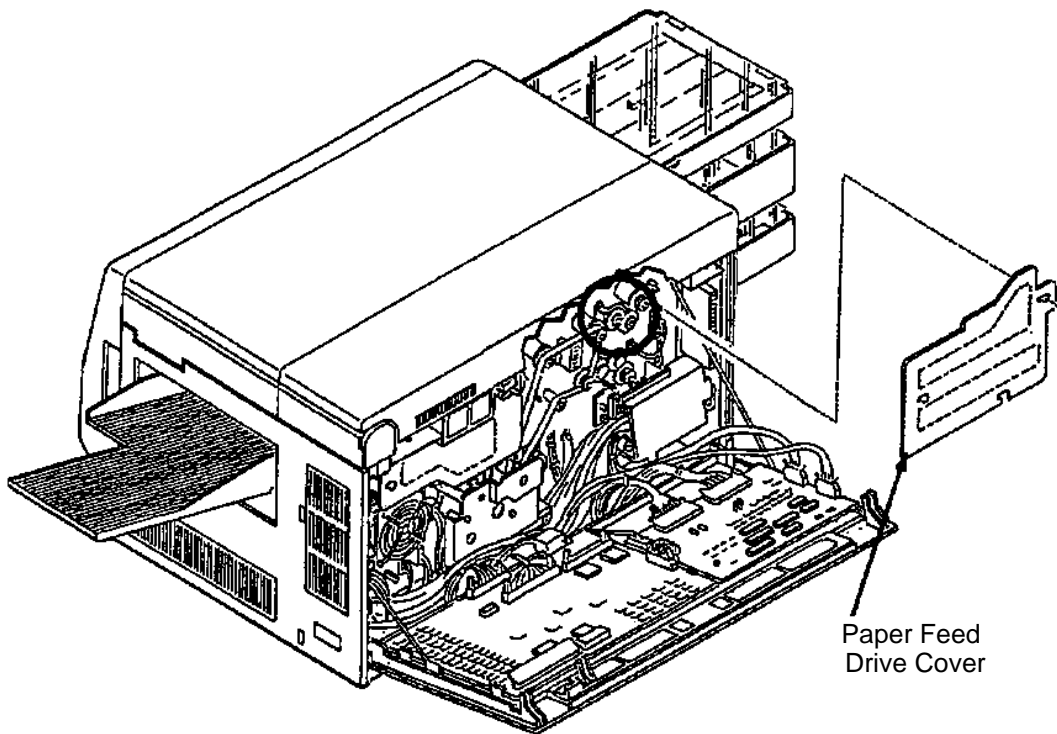


Upper Pick-Up Roller Drive Removal

To remove the upper pick-up roller drive:

- 1 Open the back cover.
- 2 Remove the paper feed drive cover (three screws).
- 3 Remove the upper pick-up roller drive (three screws).

Note: You may need to remove the EMI grounding plate.

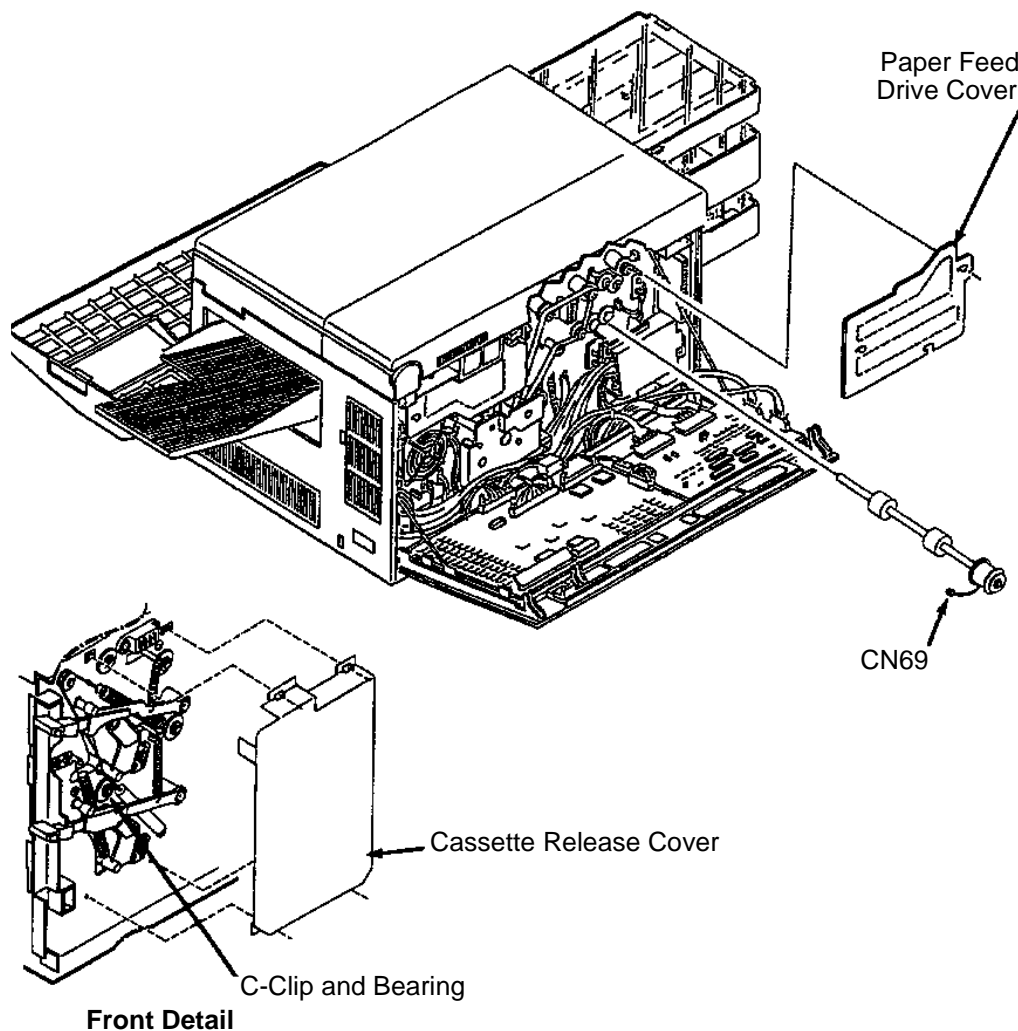


Upper Pick-up Roller Drive Detail

Lower Pick-Up Roller Removal

To remove the lower pick-up roller:

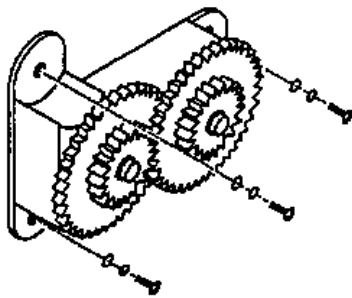
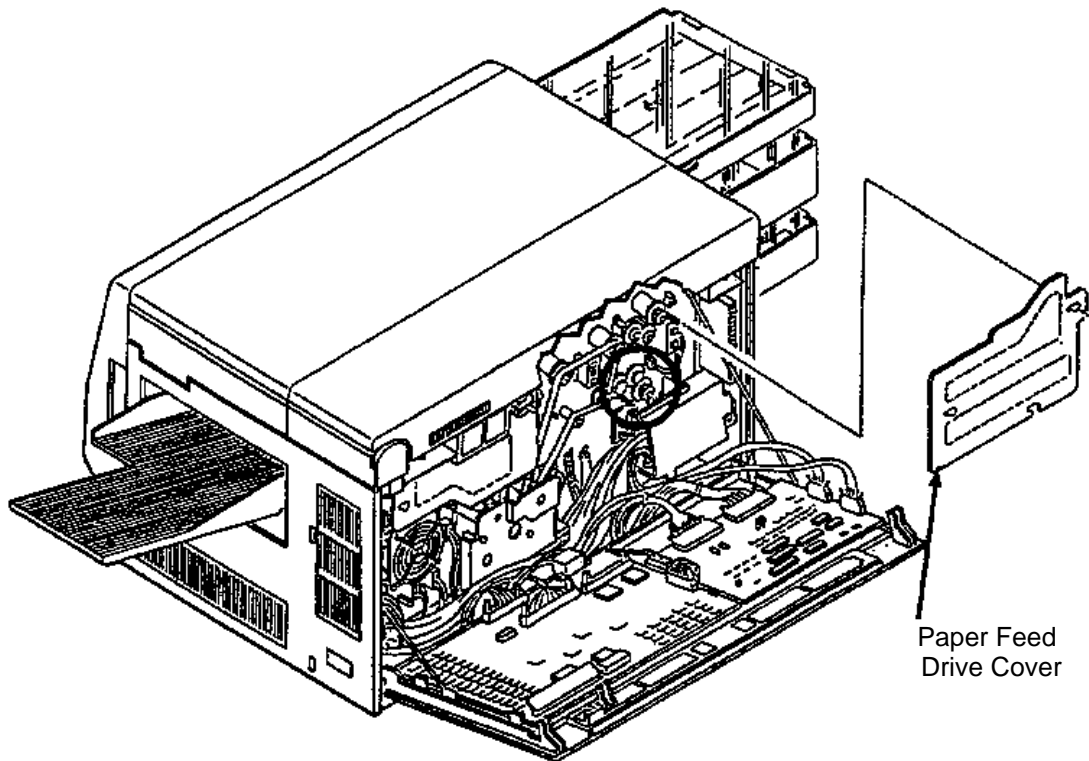
- 1 Open the front and back covers.
- 2 Remove the paper feed drive cover (three screws).
- 3 Disconnect CN69.
- 4 Remove the cassette release cover (two screws).
- 5 Remove the front C-clip and bearing.
- 6 Slide the lower pick-up roller out the back of the printer.



Lower Pick-Up Roller Drive Removal

To remove the lower pick-up roller drive:

- 1 Open the back cover.
- 2 Remove the paper feed drive cover (three screws).
- 3 Remove the lower pick-up roller drive (three screws).

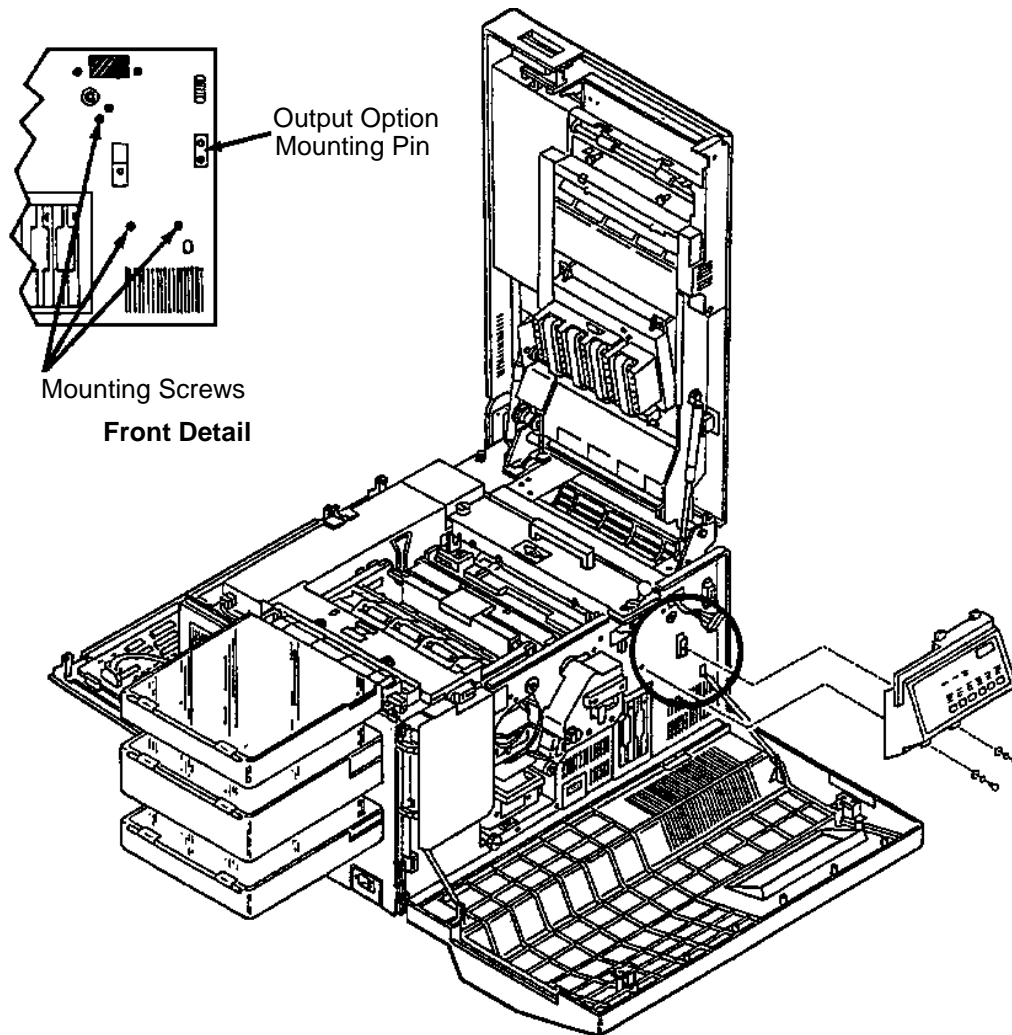


Lower Pick-up Roller Drive Detail

Job Offset Assembly Removal

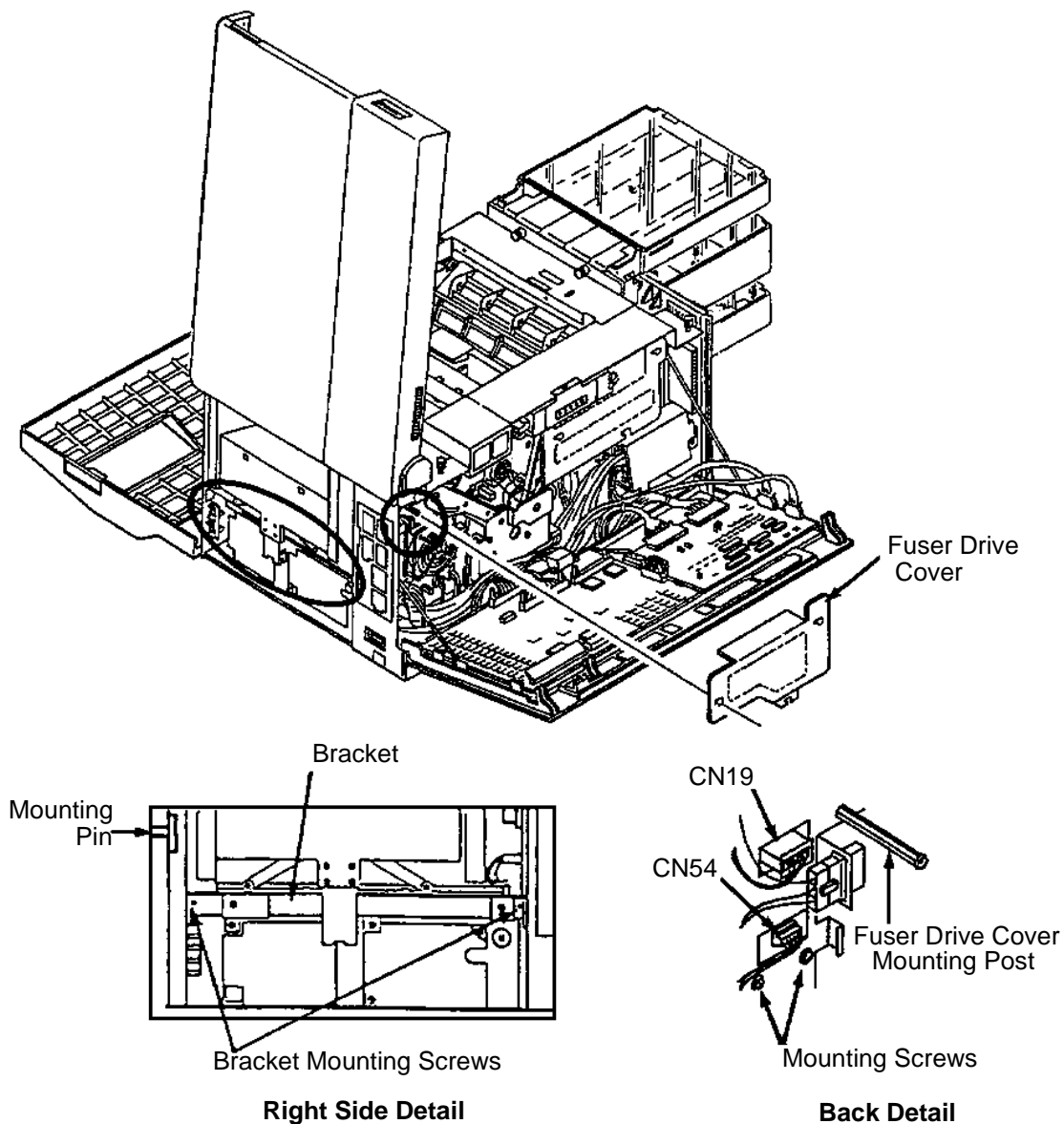
To remove the job offset assembly:

- 1 Open the front, top, and back covers.
- 2 Remove the paper output tray.
- 3 Remove the right side cover. (See [page 7-10.](#))
- 4 Remove the operator panel. (See [page 7-19.](#))



Job Offset Assembly Removal

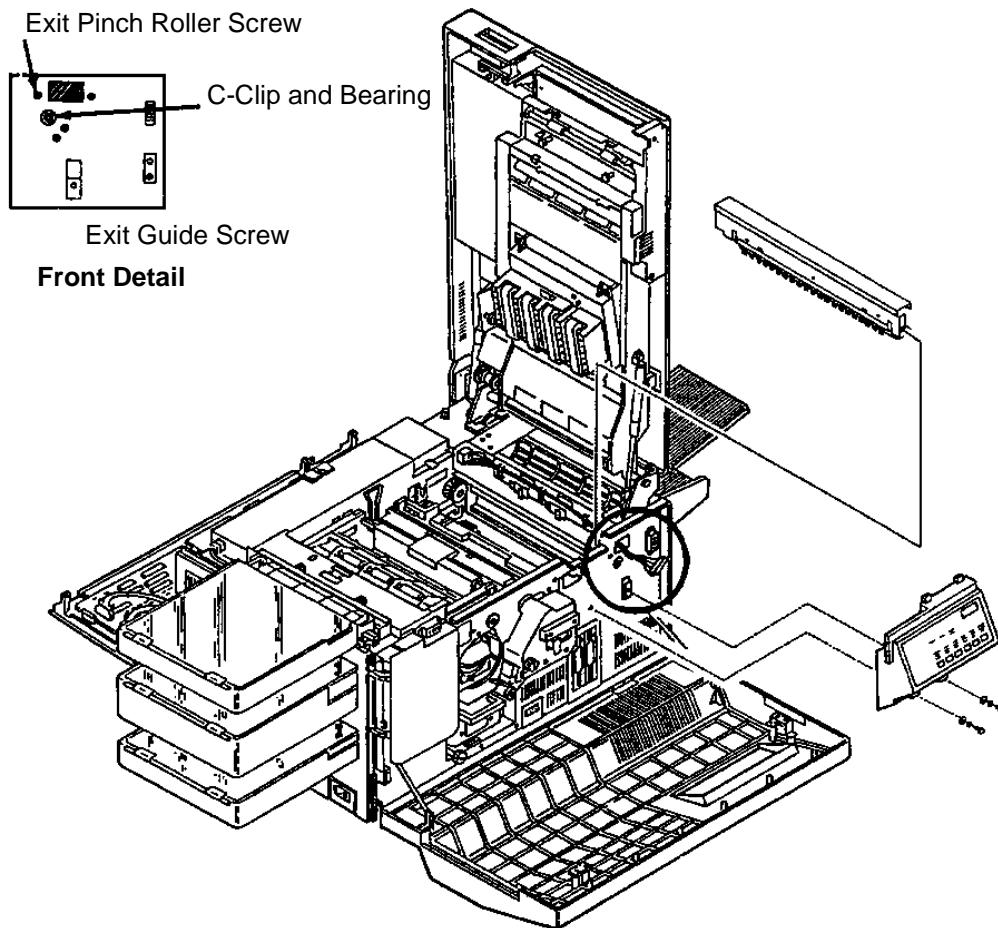
- 5 Remove the DC power supply (See [page 7-31.](#))
- 6 Remove the mounting bracket for the DC power supply (two screws).
- 7 Remove the fuser drive cover (three screws).
- 8 Disconnect CN19 and CN54.
- 9 Remove the five screws holding the job offset assembly in place (three front and two back).
- 10 Remove the fuser drive cover mounting post.
- 11 Remove the output option mounting pin (single screw, located on the front of the printer).
- 12 Remove the job offset assembly.



Exit Pinch Roller Removal

To remove the exit pinch roller:

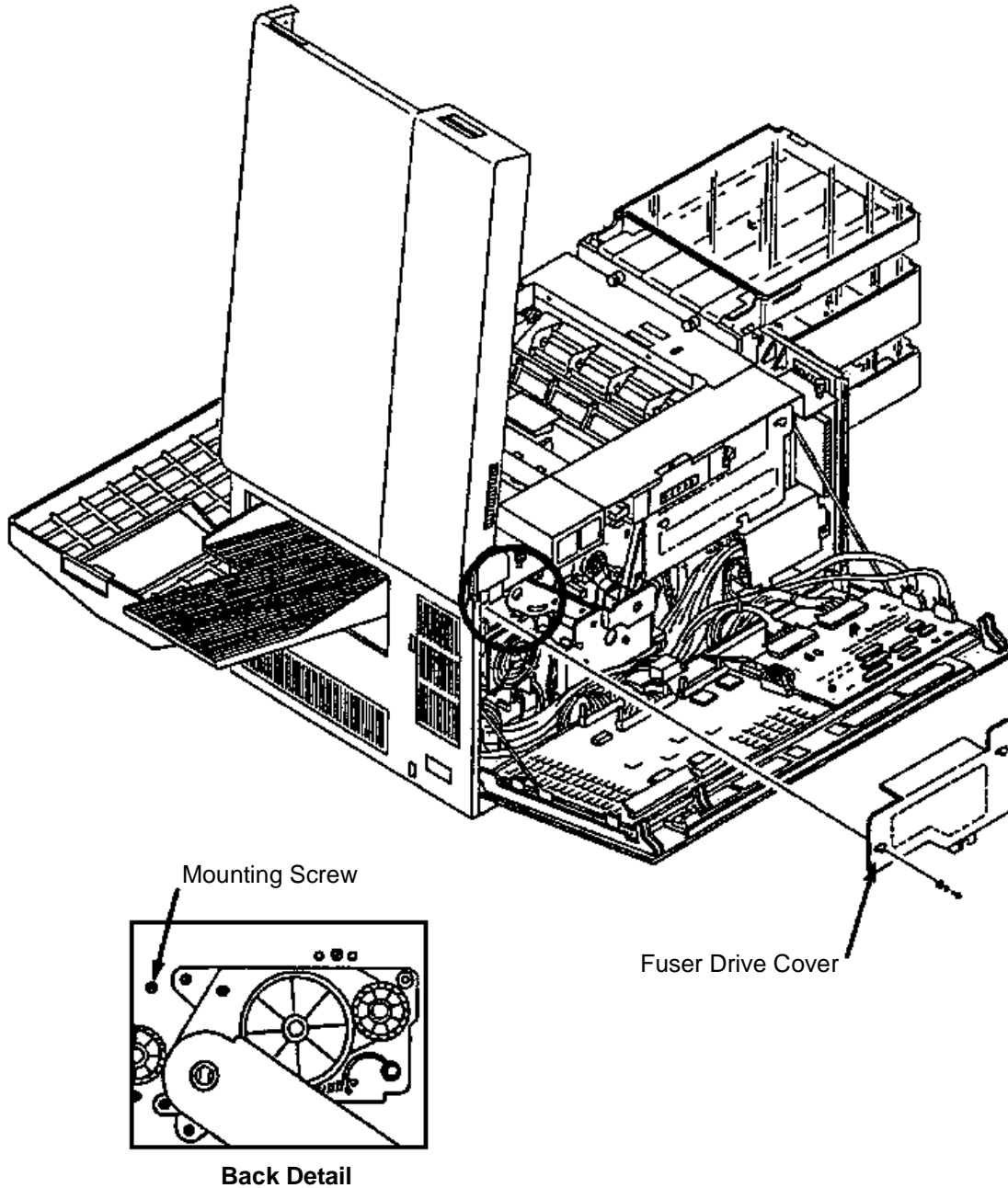
- 1 Open the front, back, and top covers.
- 2 Remove the fuser.
- 3 Remove the operator panel. (See [page 7-19](#).)
- 4 Remove the front screw holding the exit pinch roller in place.
- 5 Remove the front screw holding the exit guide in place.



Exit Pinch Roller Removal

- 6 Remove the fuser drive cover (three screws).
- 7 Remove the back screw holding the exit pinch roller in place.
- 8 Lift the exit pinch roller from the printer.

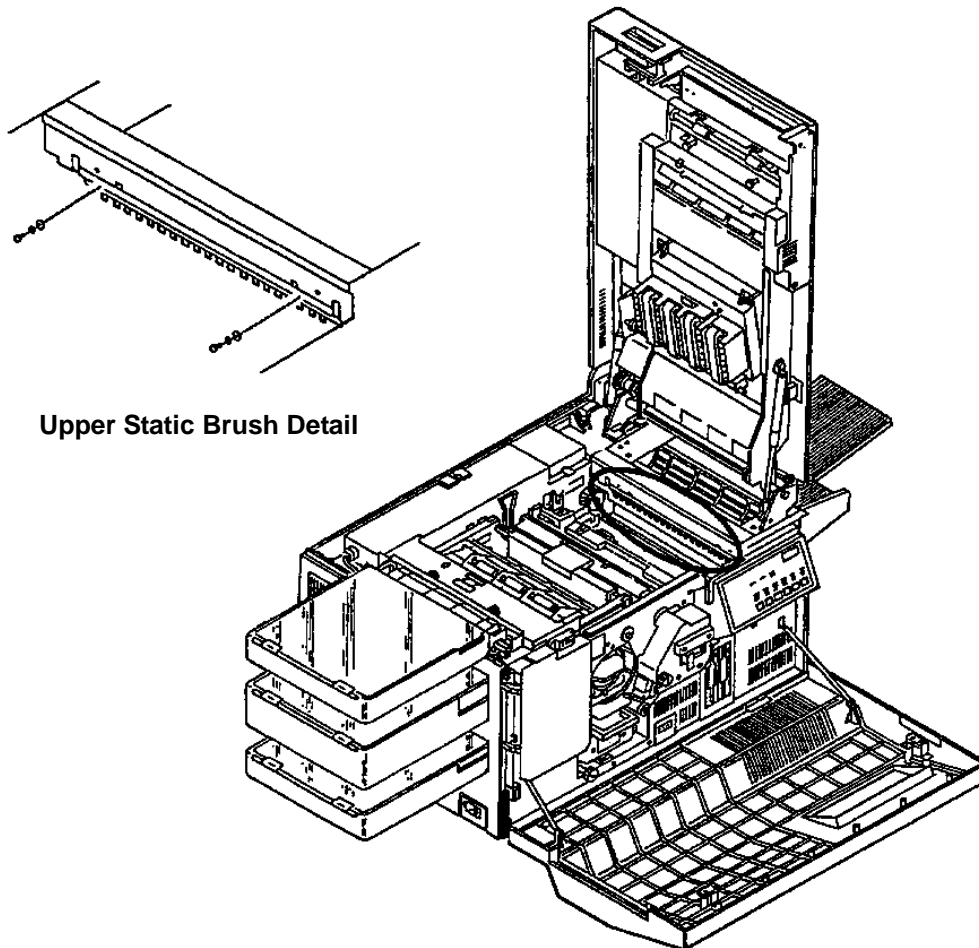
Note: Use caution so as not to damage the paper full or exit sensors.



Upper Static Brush Removal

To remove the upper static brush:

- 1 Open the top and front covers.
- 2 Remove the fuser.
- 3 Remove the upper static brush from the exit pinch roller assembly (two screws).

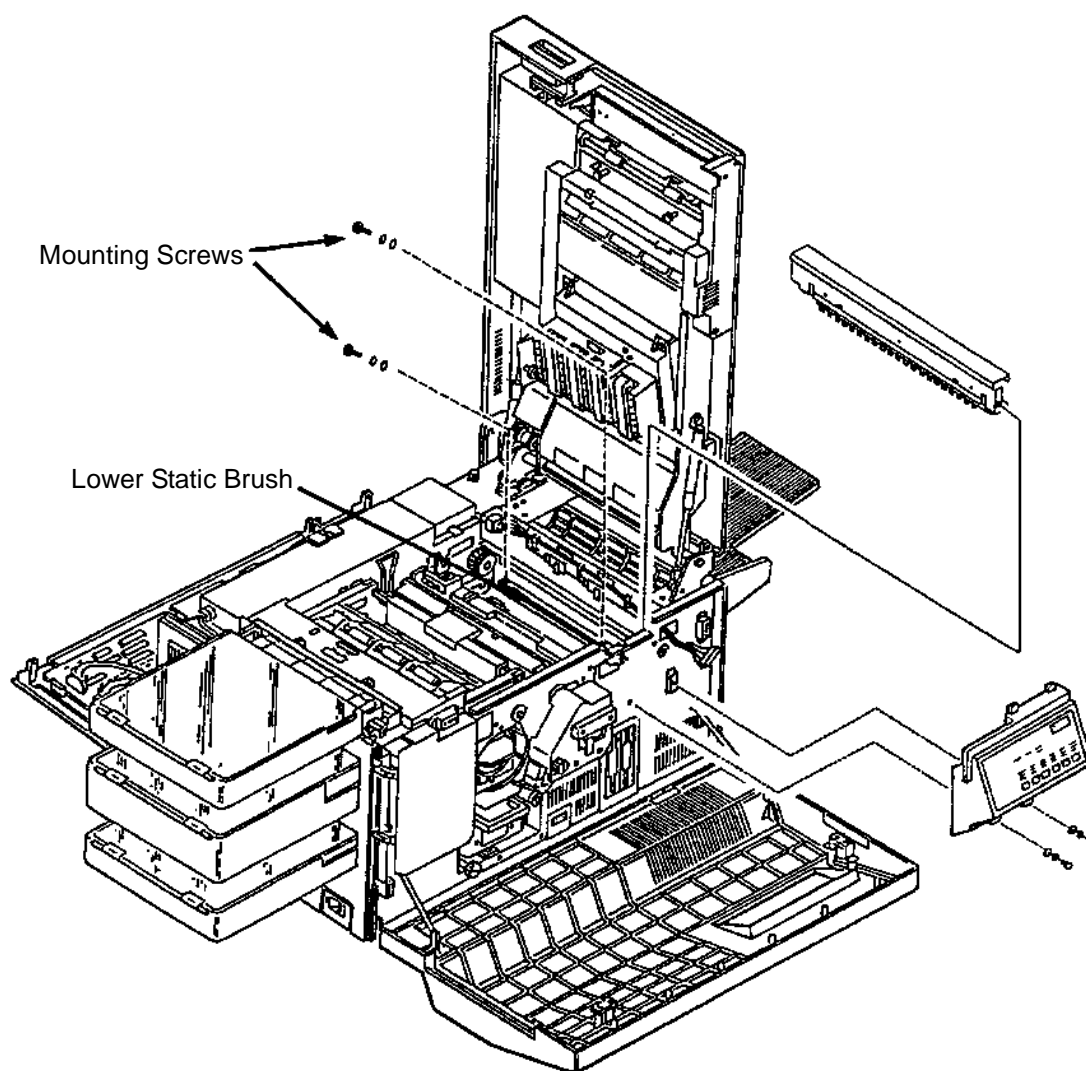


Upper Static Brush Detail

Lower Static Brush Removal

To remove the lower static brush:

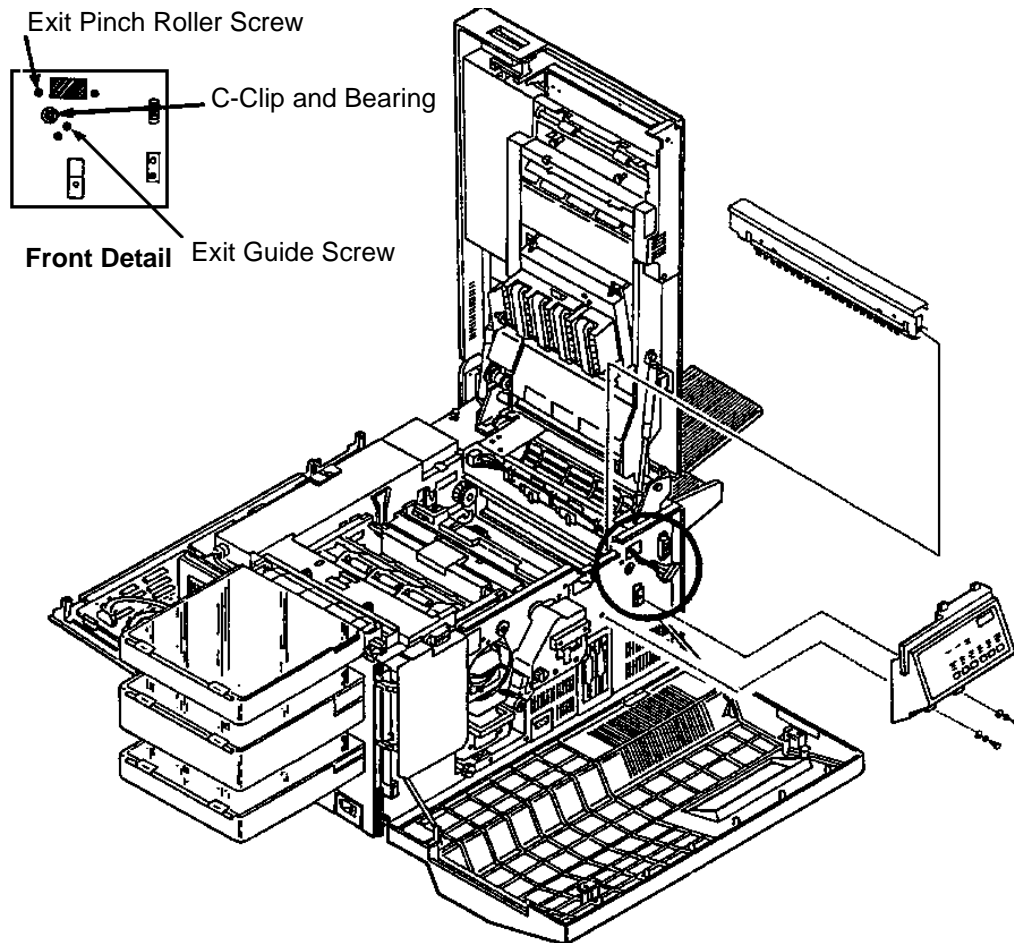
- 1 Open the top, front and back covers.
- 2 Remove the fuser.
- 3 Remove the operator panel. (See [page 7-19](#).)
- 4 Remove the exit pinch roller assembly. (See [page 7-68](#).)
- 5 Remove the lower static brush (two screws).



Exit Roller Assembly Removal

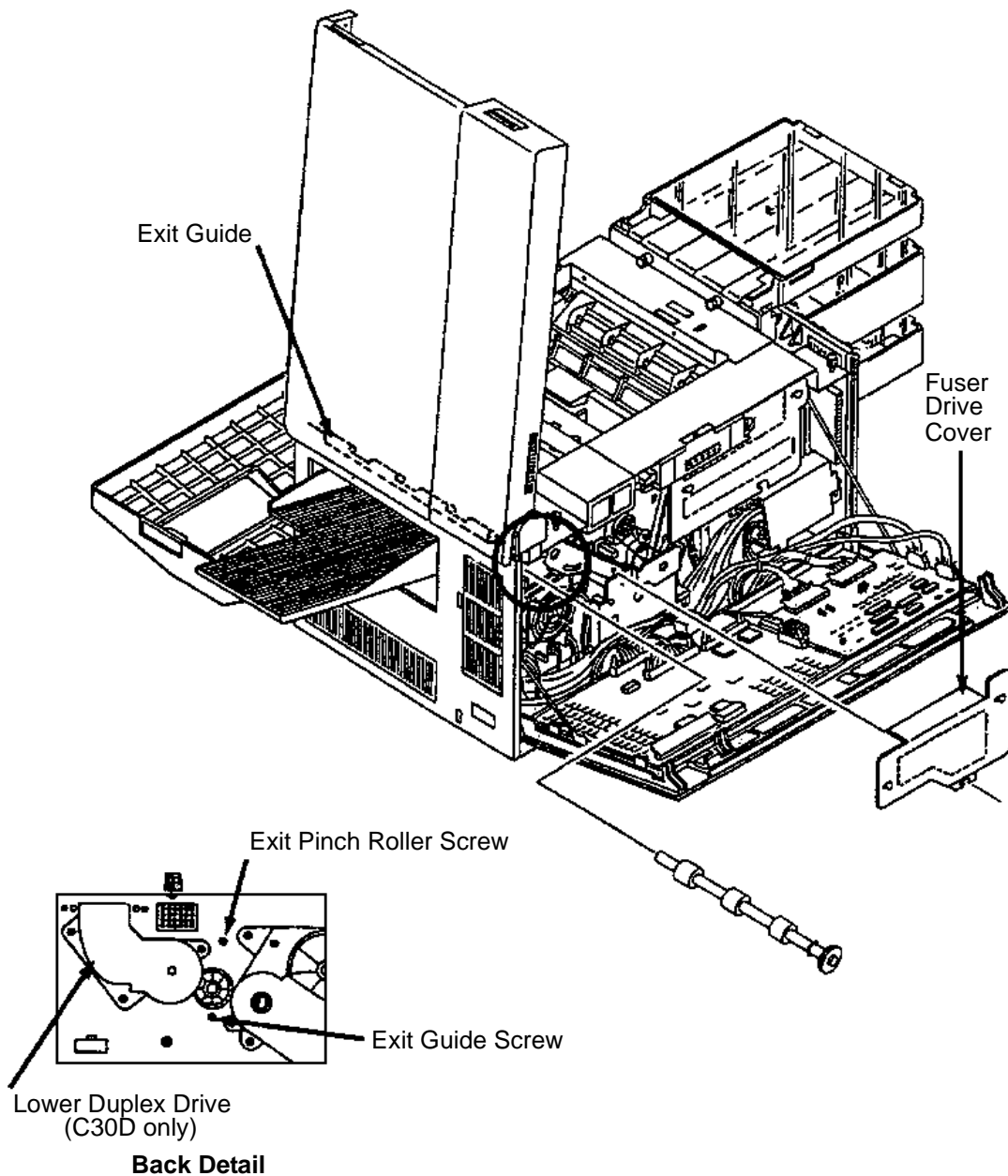
To remove the exit roller assembly:

- 1 Open the front, back, and top covers.
- 2 Remove the fuser.
- 3 Remove the operator panel (See [page 7-19](#)).
- 4 Remove the front screw holding the exit guide in place.



Exit Roller Assembly Removal

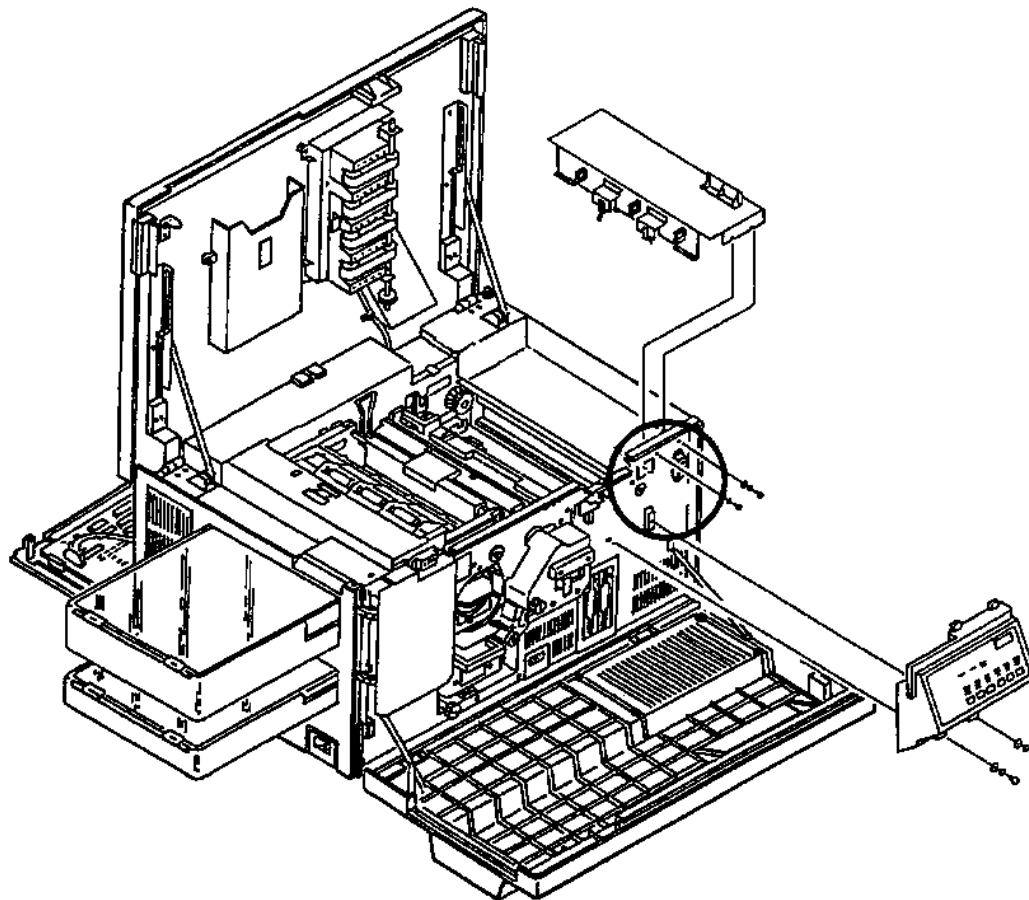
- 5 Remove the fuser drive cover (three screws).
 - 6 Remove the exit pinch roller. (See [page 7-68](#).)
 - 7 **Duplex only:** Remove the lower duplex drive (3 screws).
 - 8 Remove the back screw holding the exit guide in place.
 - 9 Tilt the exit guide toward the center of the printer.
 - 10 Remove the front C-clip and bearing.
 - 11 Slide the exit roller out the back of the printer.
- Note:** Use caution so as not to damage the paper full or exit sensors.



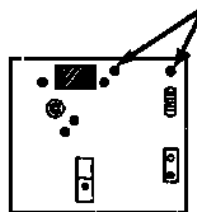
Exit Cover Removal (Simplex)

To remove the simplex exit cover:

- 1 Open the front, back, and top covers.
- 2 Remove the fuser.
- 3 Remove the right side cover. (See [page 7-9.](#))
- 4 Remove the paper output tray.
- 5 Remove the operator panel. (See [page 7-19.](#))



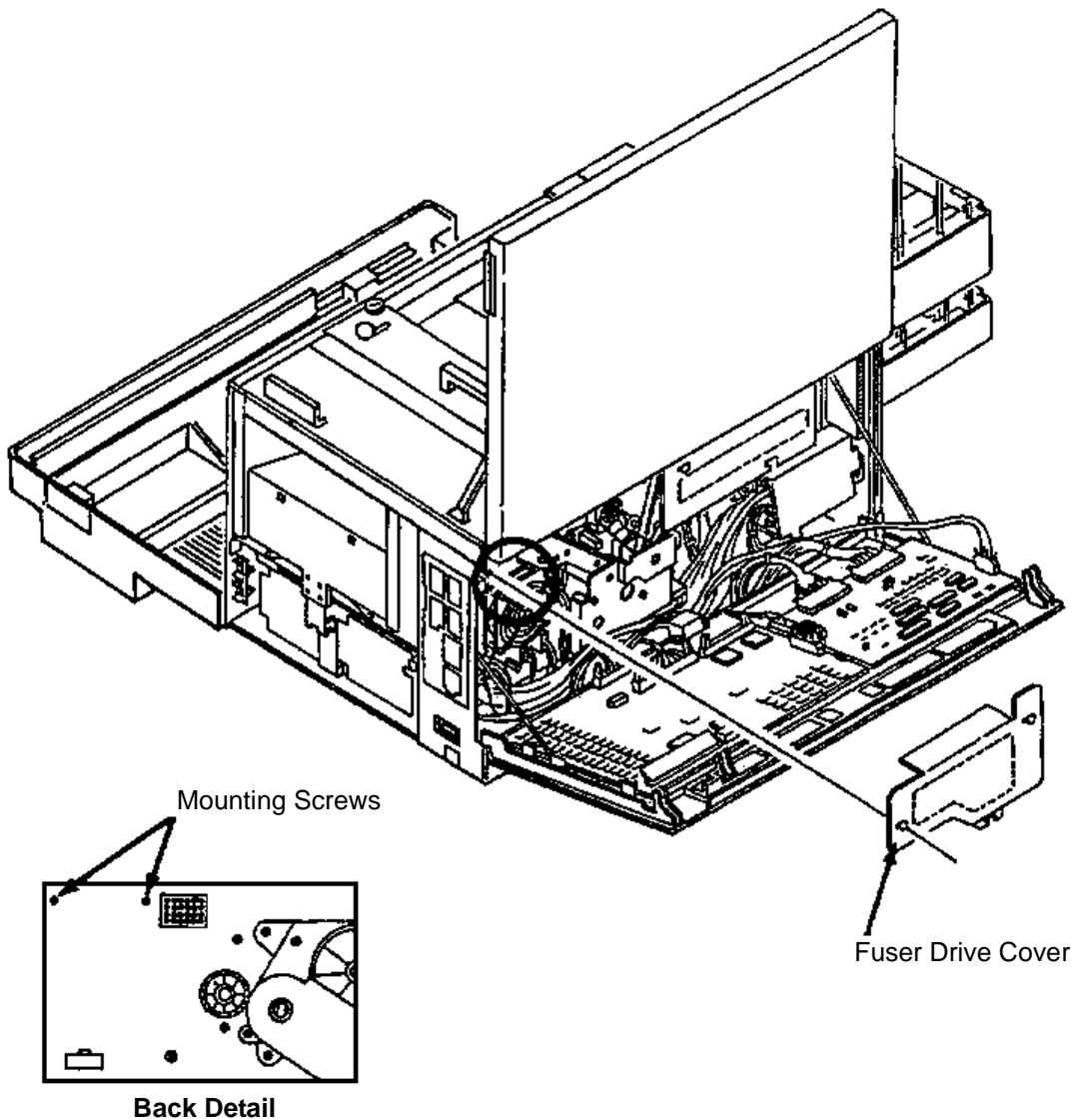
Mounting Screws



Front Detail

Exit Cover Removal (Simplex)

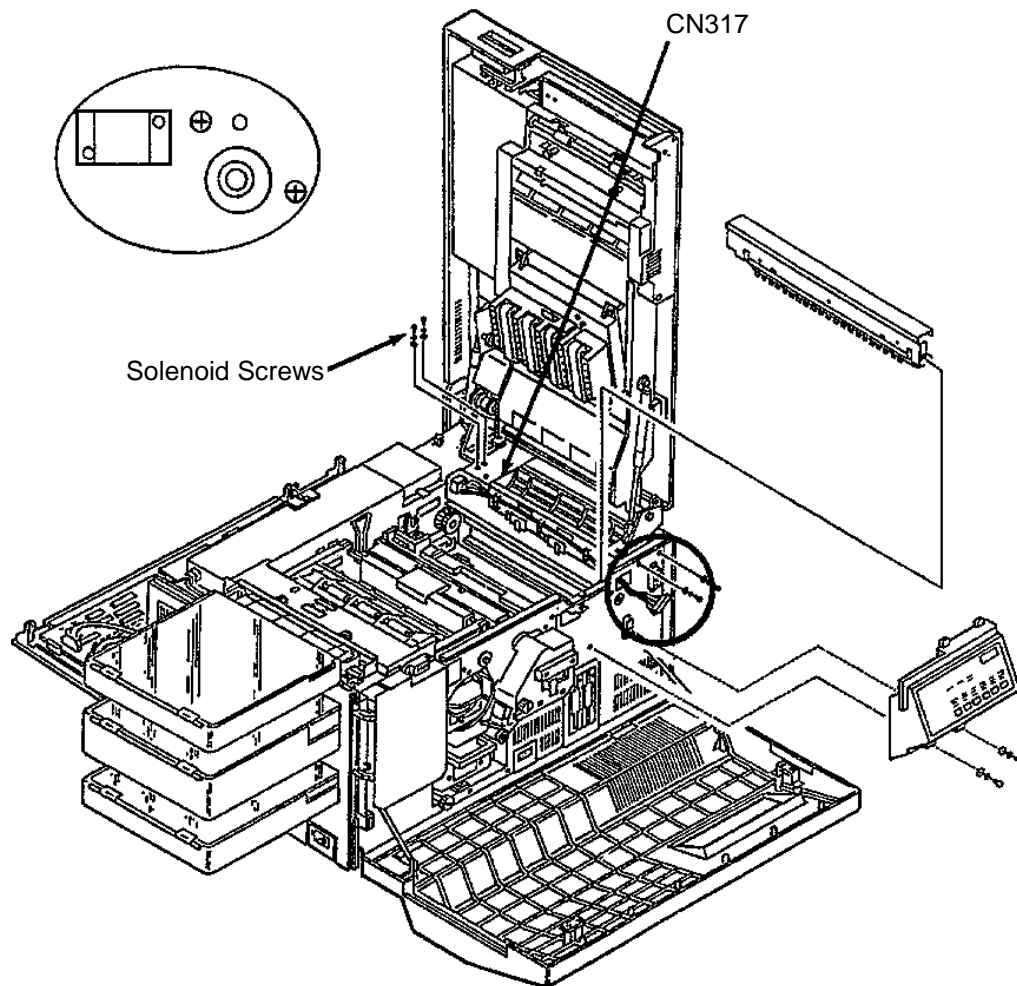
- 6 Remove the fuser drive cover (three screws).
- 7 Remove the exit pinch roller. (See [page 7-68.](#))
- 8 Disconnect CN49 and CN51.
- 9 Remove the four screws holding the exit cover in place (two front and two back).
- 10 Remove the wiring harness for CN42, CN49, and CN51 from the exit cover.
- 11 Lift the exit cover from the printer.



Exit Cover Removal (Duplex)

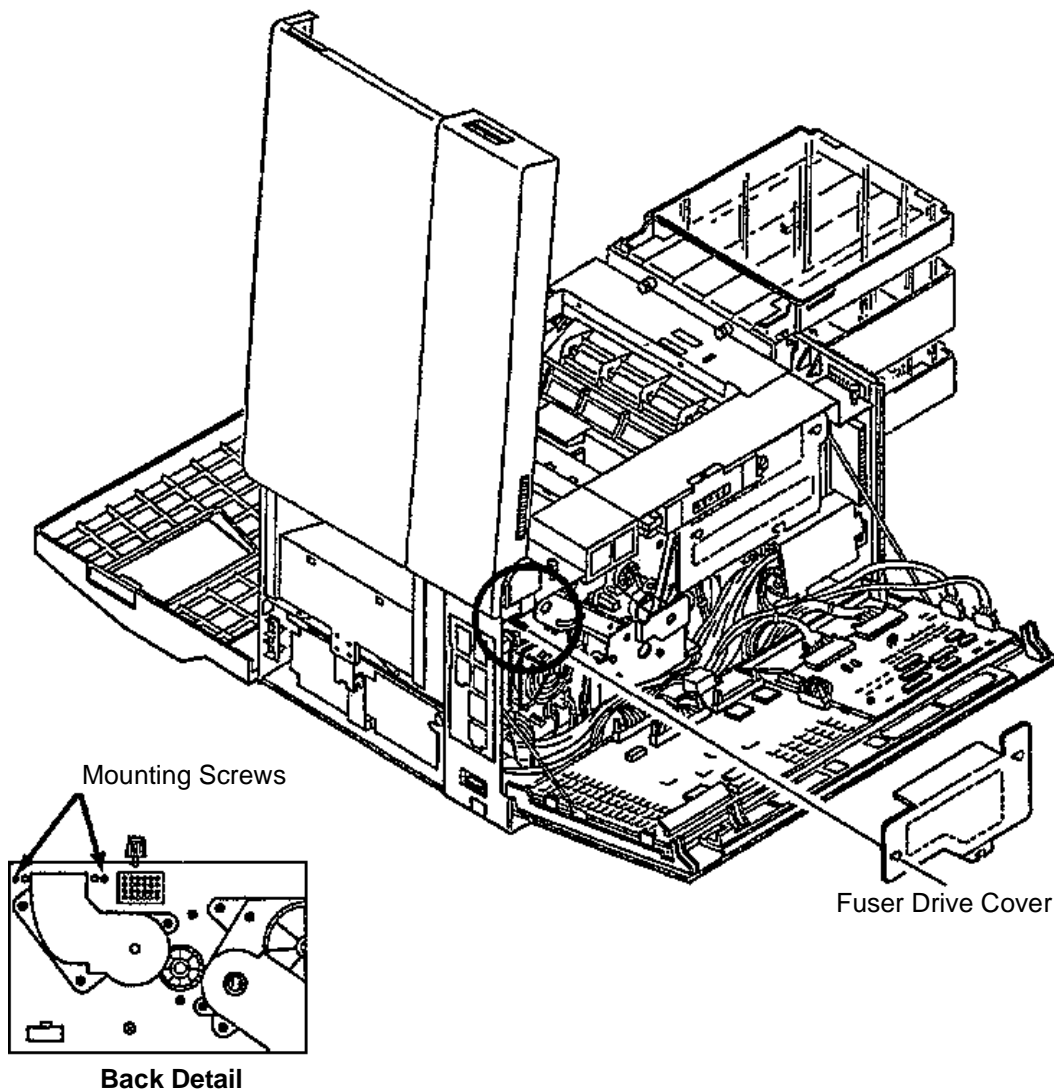
To remove the duplex exit cover:

- 1 Open the front, top, and back covers.
- 2 Remove the fuser.
- 3 Remove the paper output tray.
- 4 Remove the right side cover. (See [page 7-10.](#))
- 5 Remove the operator panel. (See [page 7-19.](#))



Exit Cover Removal (Duplex)

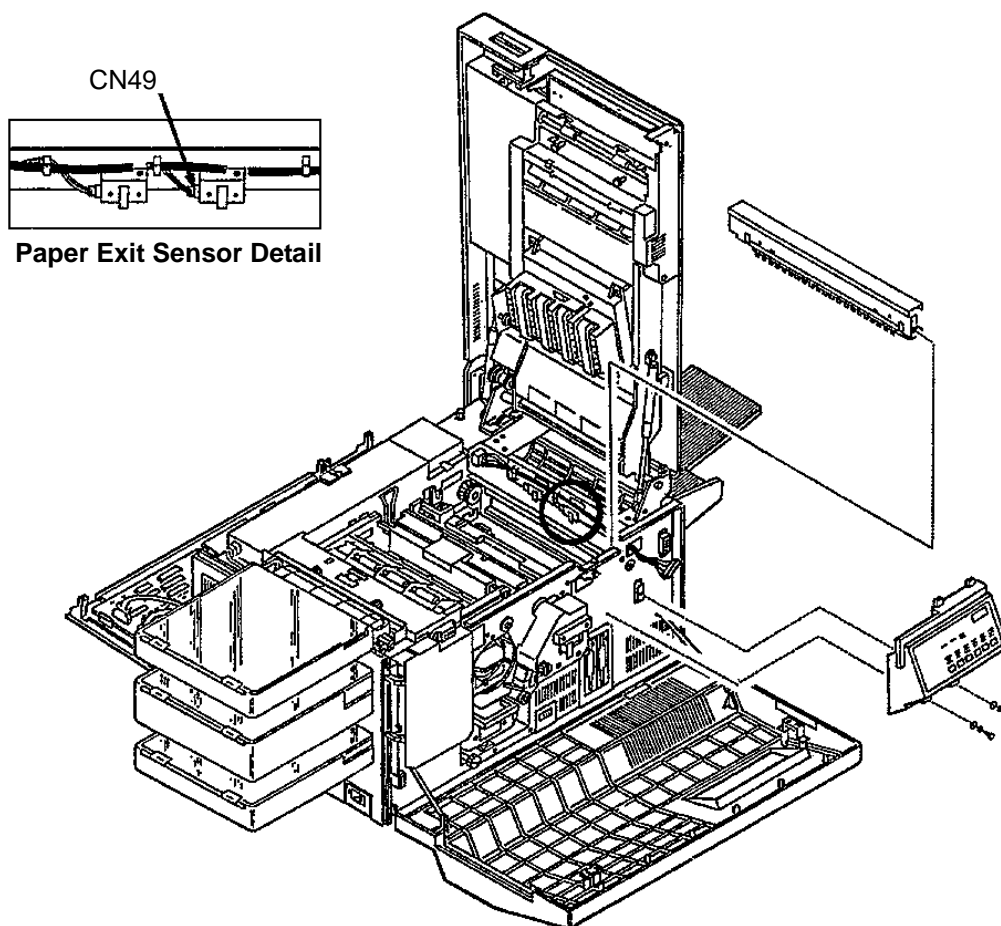
- 6 Remove the fuser drive cover (three screws).
- 7 Remove the exit pinch roller. (See [page 7-68.](#))
- 8 Disconnect CN49 and CN51.
- 9 Remove the wiring harness for CN42, CN49, and CN51 from the exit cover.
- 10 Disconnect CN317.
- 11 Remove the four screws holding the exit cover in place (two front and two back).
- 12 Lift the exit cover from the printer.
- 13 Remove the solenoid from the exit cover (two screws).



Paper Exit Sensor Removal

To remove the paper exit sensor:

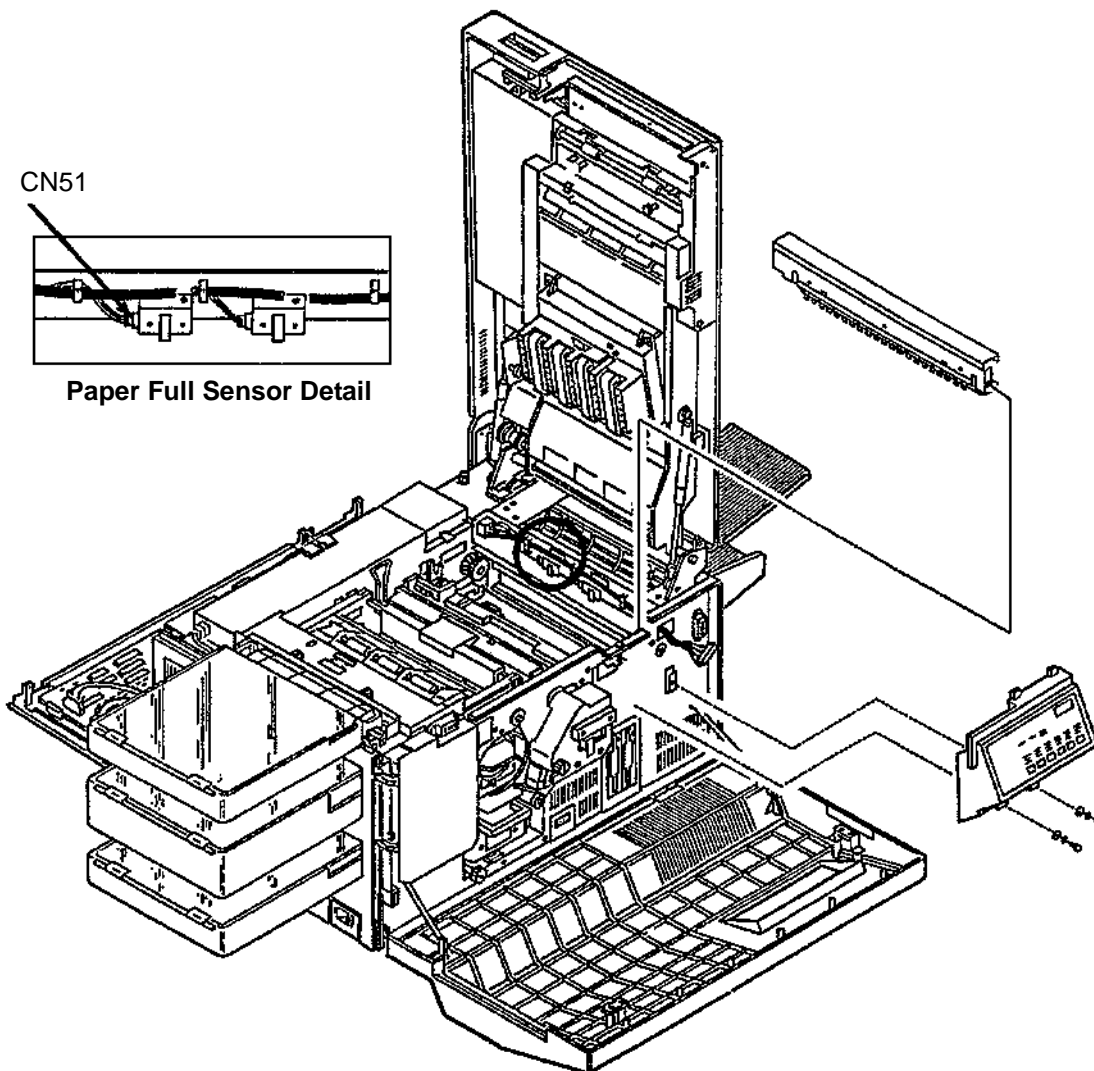
- 1 Open the front, back, and top covers.
- 2 Remove the fuser.
- 3 Remove the operator panel. (See [page 7-19.](#))
- 4 Remove the exit pinch roller. (See [page 7-68.](#))
- 5 Disconnect CN49.
- 6 Remove the two screws holding the exit cover in place (one front and one back).
- 7 Tilt the exit cover assembly toward the center of the printer.
- 8 From the underside, remove the paper exit sensor (single screw).



Paper Full Sensor Removal

To remove the paper full sensor:

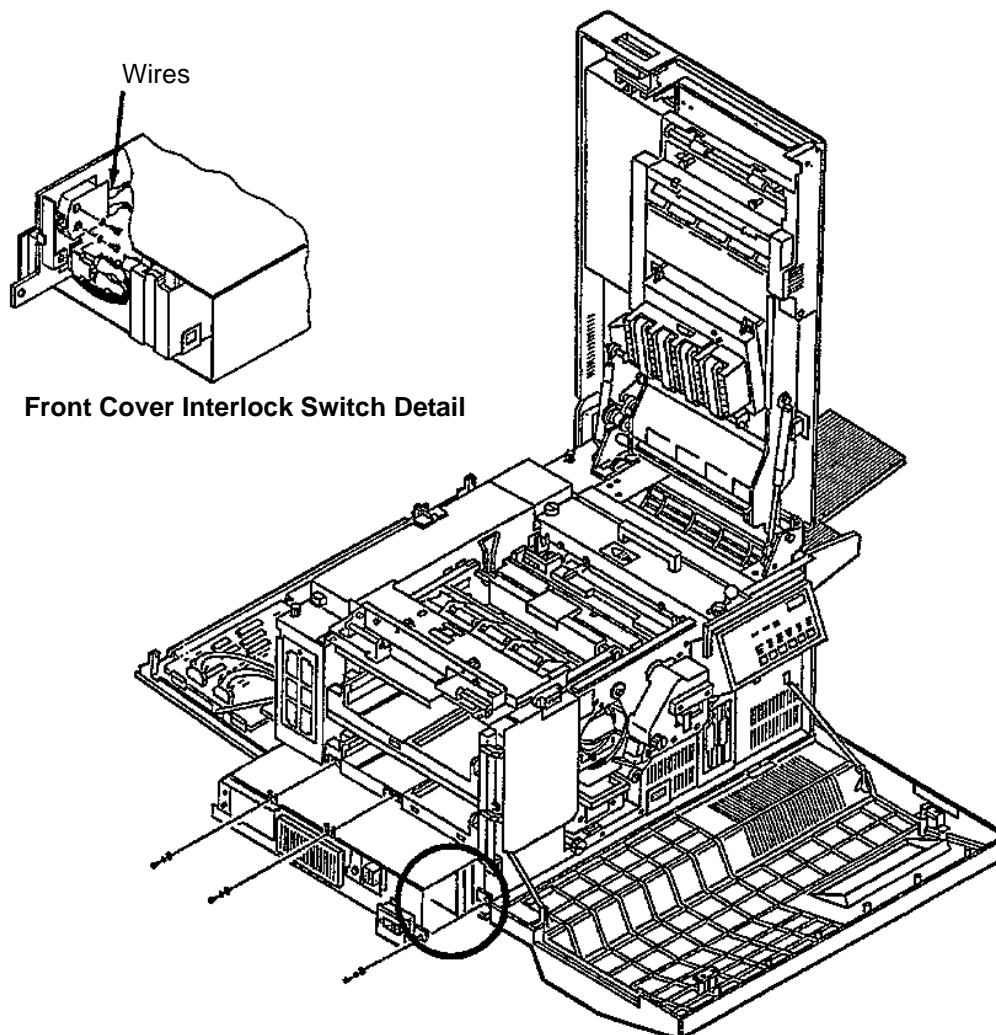
- 1 Open the front, back, and top covers.
- 2 Remove the fuser.
- 3 Remove the operator panel. (See [page 7-19.](#))
- 4 Remove the exit pinch roller. (See [page 7-68.](#))
- 5 Disconnect CN51.
- 6 Remove the two screws holding the exit cover in place (one front and one back).
- 7 Tilt the exit cover toward the center of the printer.
- 8 From the underside, remove the paper full sensor (single screw).



Front Cover Interlock Switch Removal

To remove the front cover interlock switch:

- 1** Open the front, top, and back covers.
- 2 Duplex only:** Remove the duplex tray.
- 3** Remove the upper and lower paper cassettes.
- 4** Remove the left side cover. (See [page 7-8](#).)
- 5** Remove the AC power supply. (See [page 7-29](#).)
- 6** Remove the AC power supply top cover (two screws).
- 7** Disconnect the two wires connected to the interlock switch.
- 8** Remove the front interlock switch (two screws).

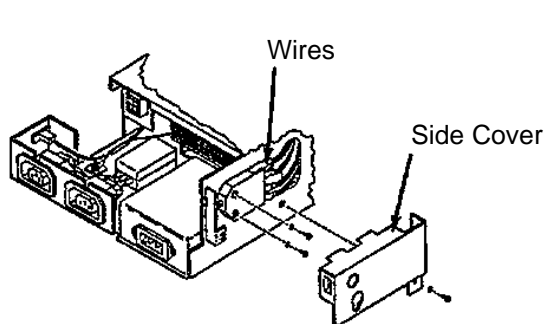


Front Cover Interlock Switch Detail

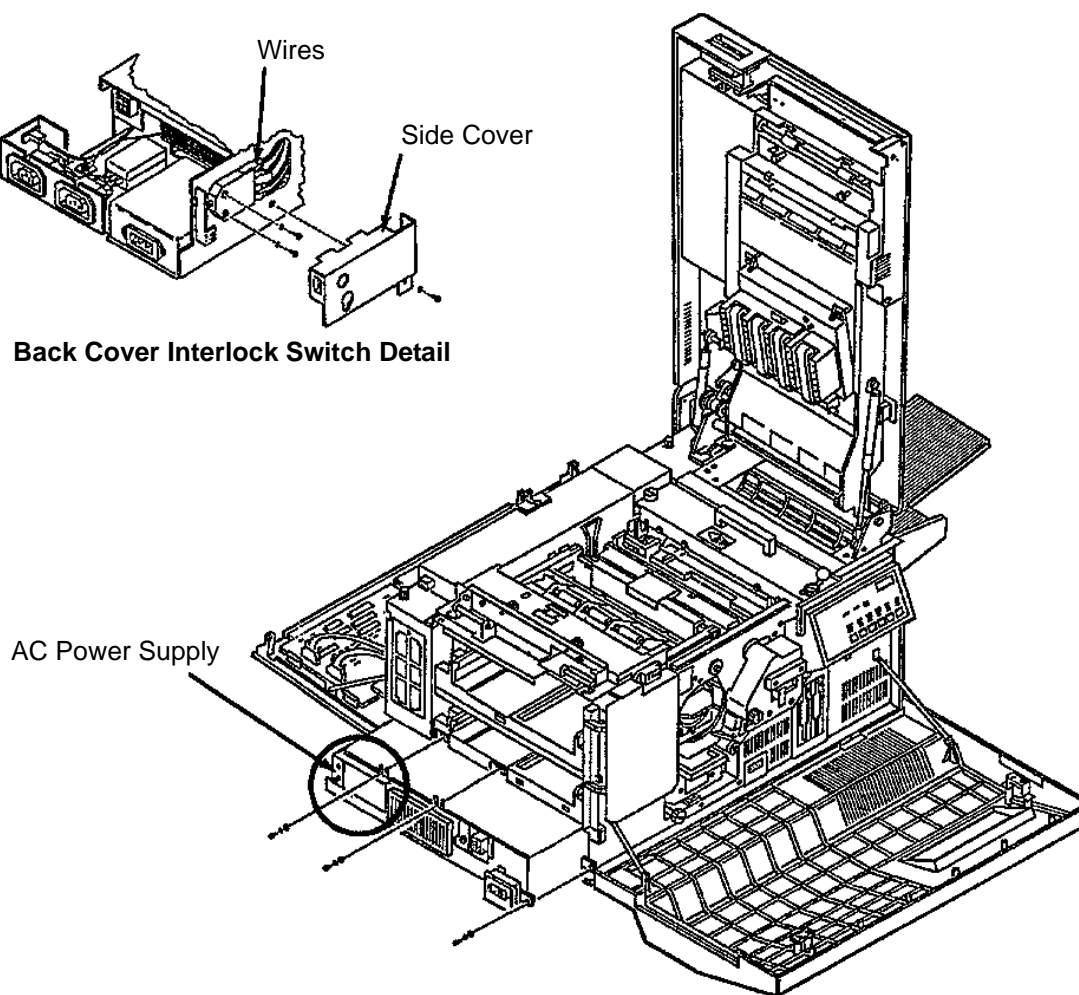
Back Cover Interlock Switch Removal

To remove the back cover interlock switch:

- 1 Open the front, top, and back covers.
- 2 **Duplex only:** Remove the duplex tray.
- 3 Remove the upper and lower paper cassettes.
- 4 Remove the left side cover. (See [page 7-8.](#))
- 5 Remove the AC power supply. (See [page 7-29.](#))
- 6 Remove the AC power supply side cover (one screw).
- 7 Disconnect the four wires connected to the interlock switch.
- 8 Remove the back cover interlock switch (two screws).



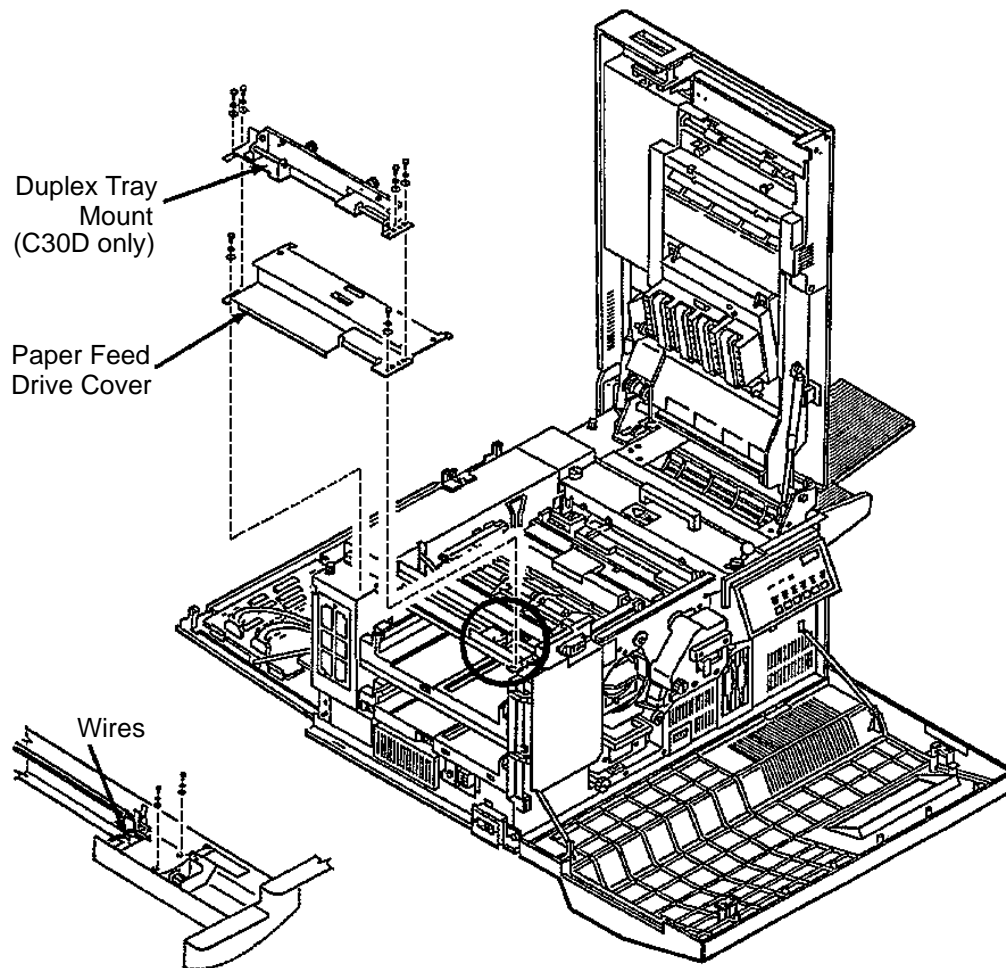
Back Cover Interlock Switch Detail



Top Cover Interlock Switch Removal

To remove the top cover interlock switch:

- 1 Open the top, front, and back covers.
- 2 **Duplex only:** Remove the duplex tray.
- 3 Remove the upper and lower paper cassettes.
- 4 Remove the left side cover. (See [page 7-8.](#))
- 5 **Duplex only:** Remove the duplex tray mount (four screws).
- 6 Remove the paper feed drive cover (three screws; duplex two screws).
- 7 Disconnect the two wires connected to the interlock switch.
- 8 Remove the top cover interlock switch (two screws).

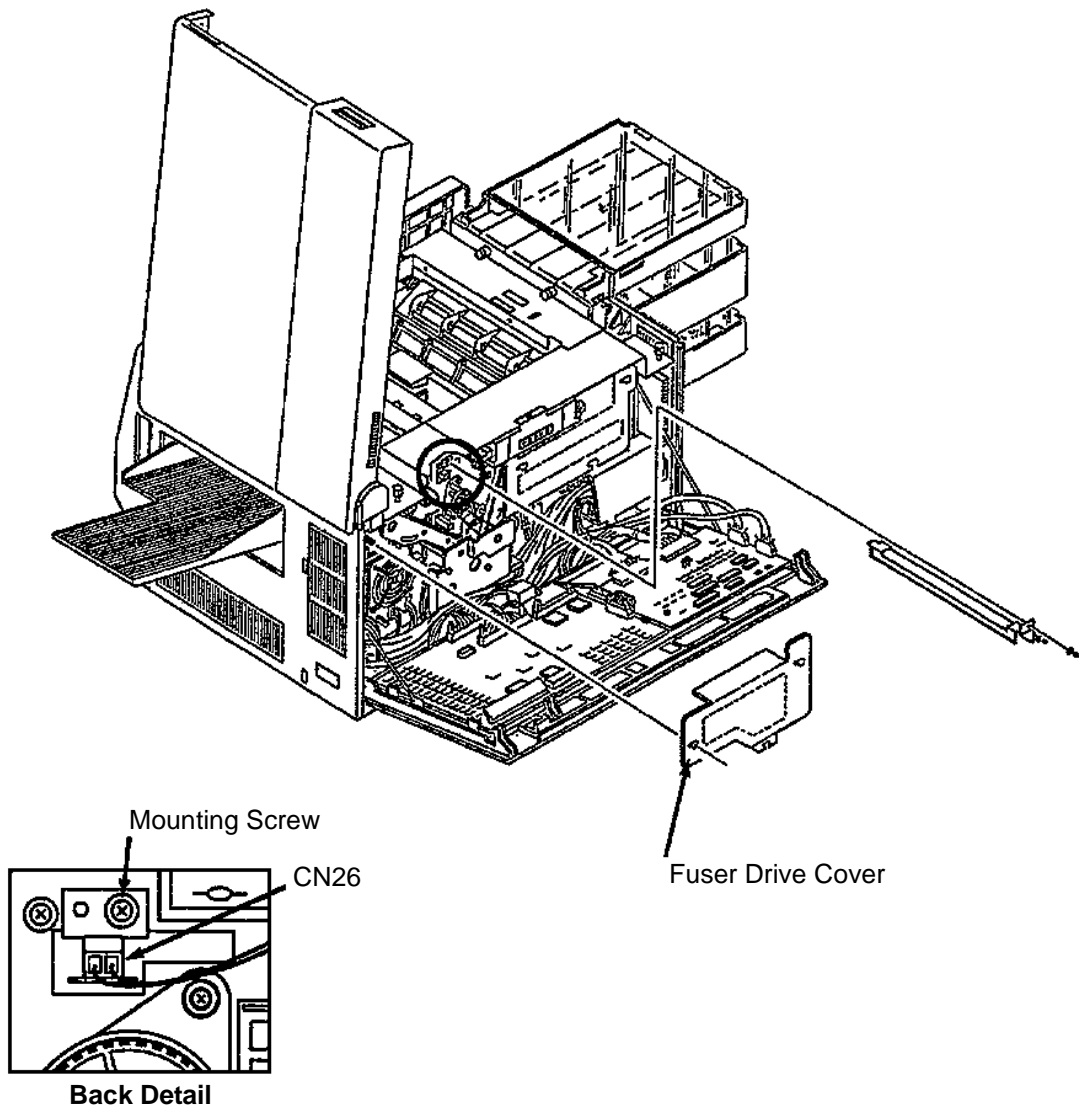


Top Cover Interlock Switch Detail

Erase Lamp Removal

To remove the erase lamp:

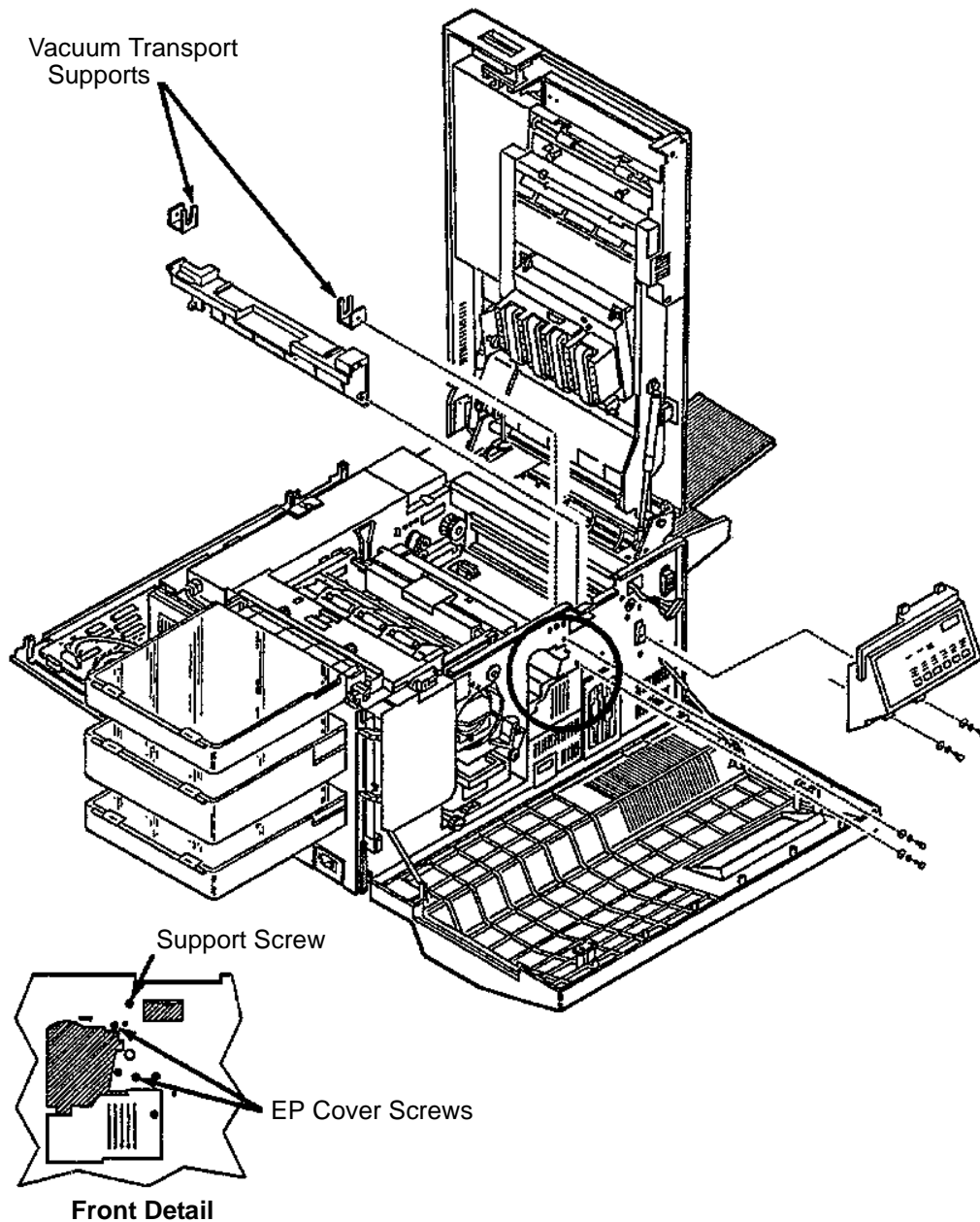
- 1 Open the top and back covers.
- 2 Remove the photoconductor and place it in its protective packaging.
- 3 Remove the fuser drive cover (three screws).
- 4 Disconnect CN26.
- 5 Remove the screw holding the erase lamp in place.
- 6 Disengage the front of the erase lamp from its guide pin.
- 7 Slide the unit out from the back of the printer.



EP Cover Removal

To remove the EP cover:

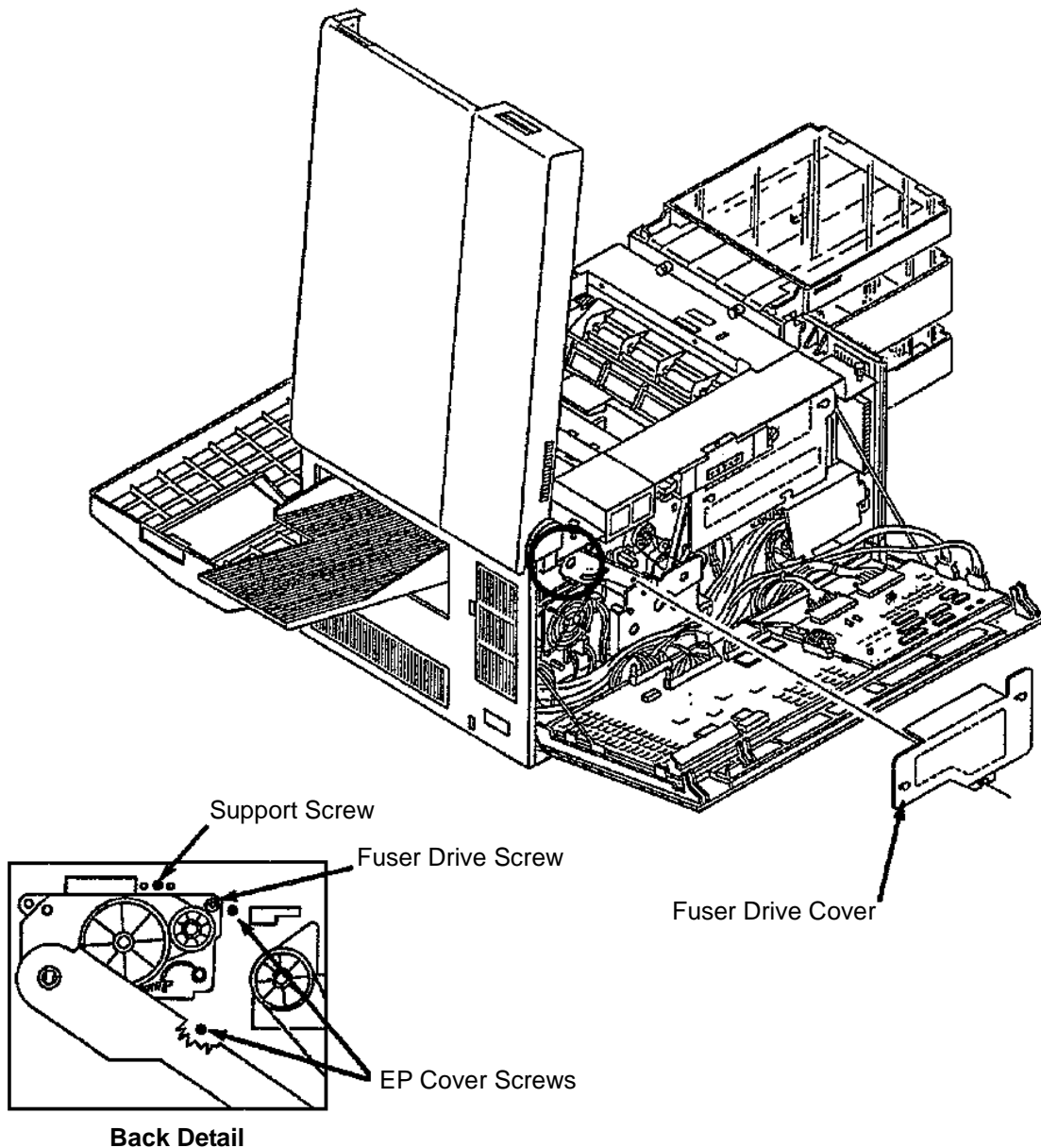
- 1 Open the front, back, and top covers.
- 2 Remove the fuser.
- 3 Remove the photoconductor and place it in its protective packaging.
- 4 Remove the cleaner unit.
- 5 Remove the operator panel. (See [page 7-19](#)).



- 6 Remove the fuser drive cover (three screws).
- 7 Remove the two supports for the vacuum transport unit (one screw each).
- 8 **Duplex only:** Remove the duplex fan. (See [page 7-27](#)).
- 9 Remove the four screws holding the EP cover in place (two front and two back).
- 10 Remove the upper right screw holding the fuser drive in place.
- 11 Lift the EP cover straight up and out of the printer.

Replacement Note:

The higher of the two drive shaft support arms should be facing the left side of the printer.



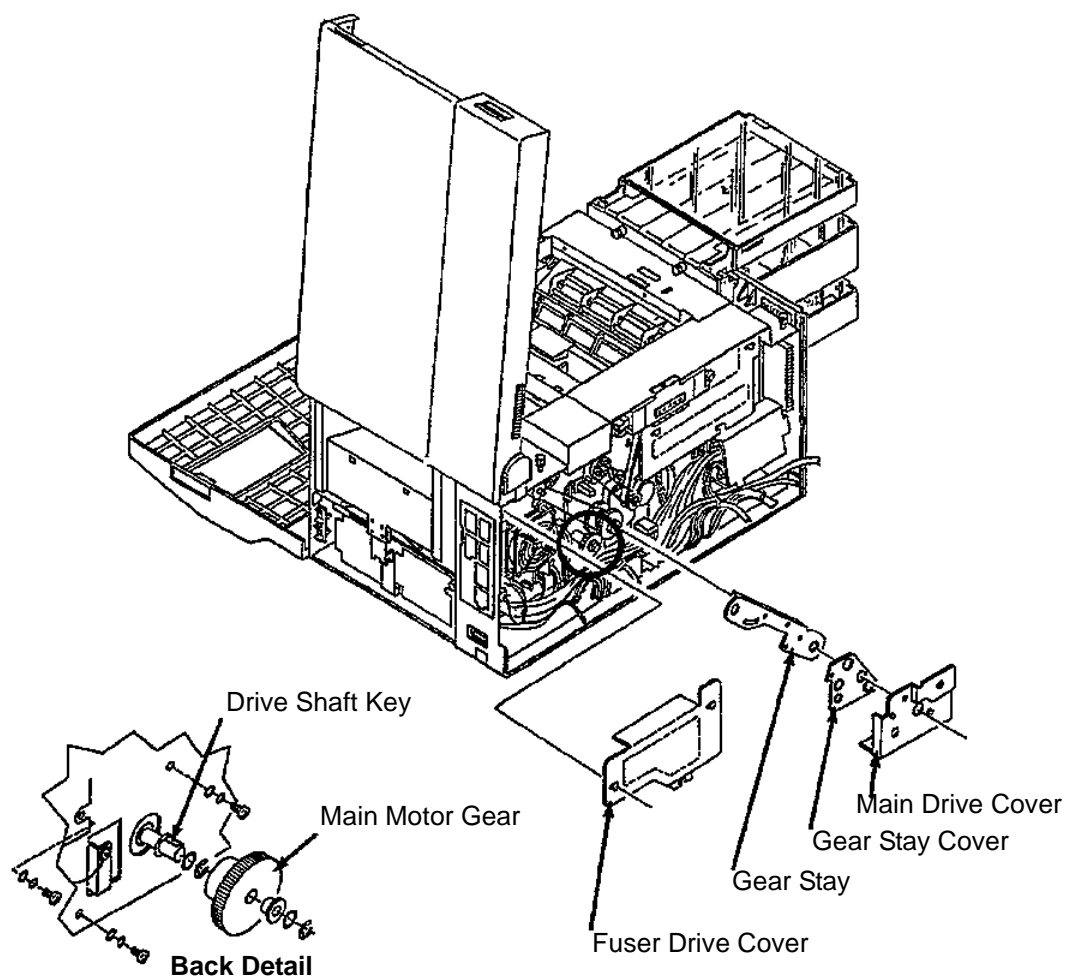
Main Motor Removal

Caution

Do not allow the capacitor contacts to short out against your body or the printer frame.

To remove the main motor:

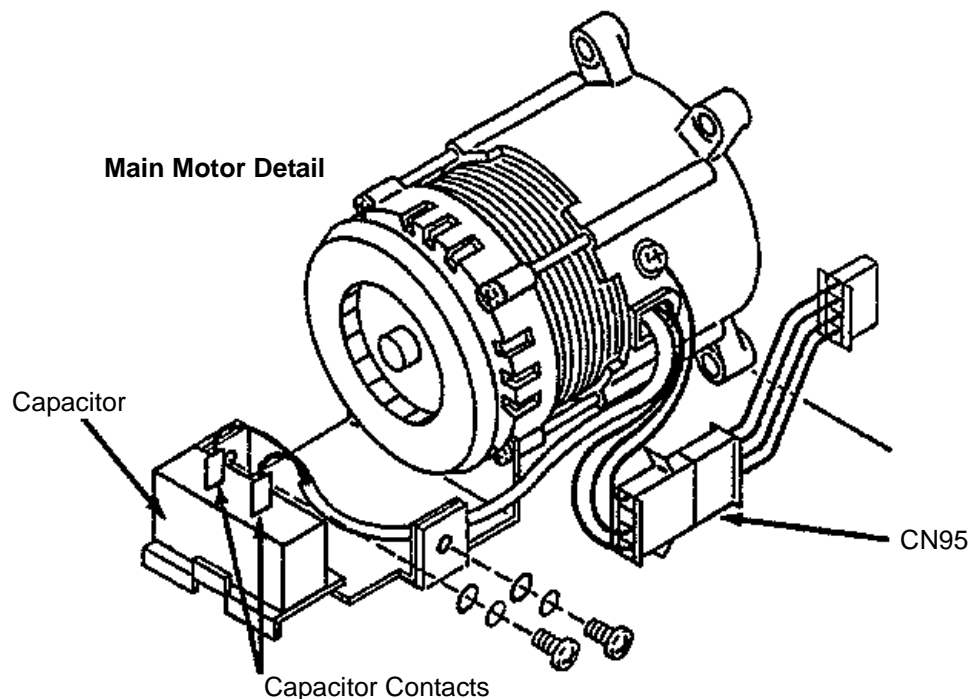
- 1 Disconnect all external cables and attachments.
- 2 Open the front, back, and top covers.
- 3 Remove the photoconductor and place it in its protective packaging.
- 4 Remove the cleaner unit.
- 5 Remove the back cover. (See [page 7-6](#).)
- 6 Remove the lower back cover. (See [page 7-7](#).)
- 7 Remove the signal interface board. (See [page 7-37](#).)



- 8 Remove the right side cover. (See [page 7-9.](#))
- 9 Remove the counter. (See [page 7-20.](#))
- 10 Remove the main drive cover (one screw).
- 11 Remove the fuser drive cover (three screws).
- 12 Remove the gear stay cover.
- 13 Remove the gear stay (three screws).
- 14 Remove the disk drive housing. (See [page 7-25.](#))
- 15 Remove the printhead. (See [page 7-23.](#))
- 16 Remove the DC power supply. (See [page 7-31.](#))
- 17 Remove the main motor gear and bearing (two C-clips).
- 18 Disconnect CN95.
- 19 From the right side, remove the two screws holding the main motor in place.
- 20 From the back, remove the three screws holding the main motor in place.
- 21 Remove the main motor through the side of the printer.

Replacement Notes:

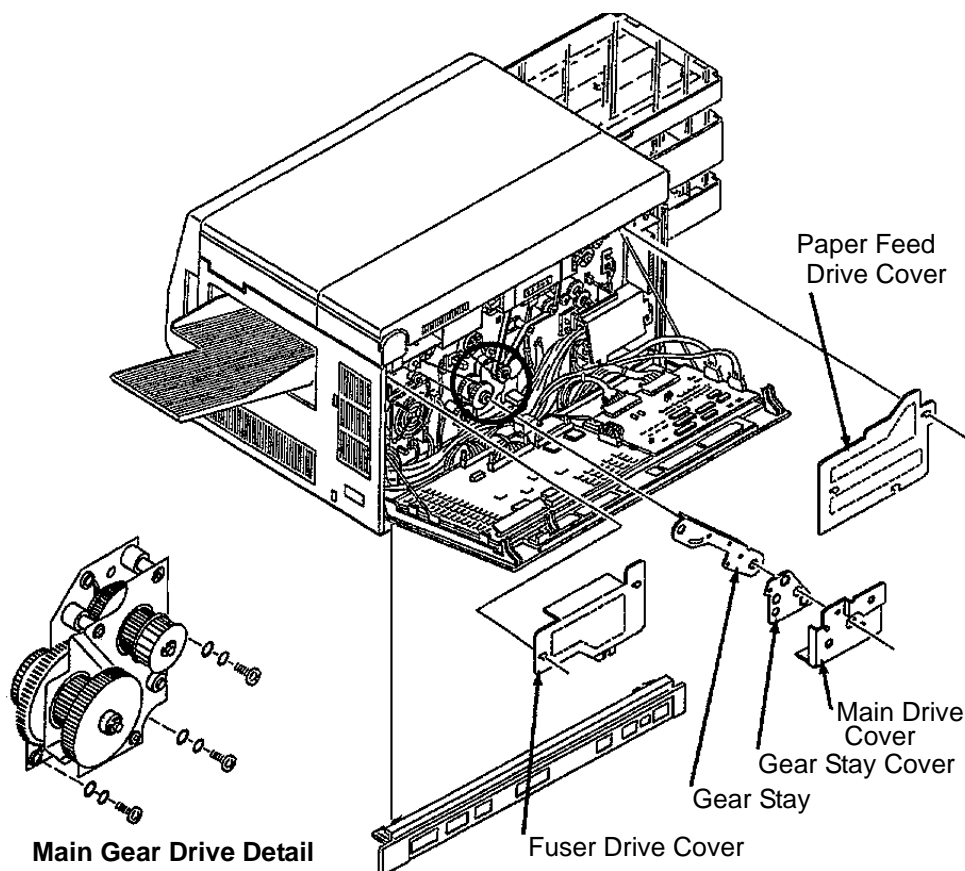
- Remove the drive shaft key from the old motor. Replacement motors are not supplied with a key.
- Be sure to tuck the CN95 connector under the motor after installation so that the wires do not protrude into the disk drive assembly area.



Main Gear Drive Removal

To remove the main gear drive:

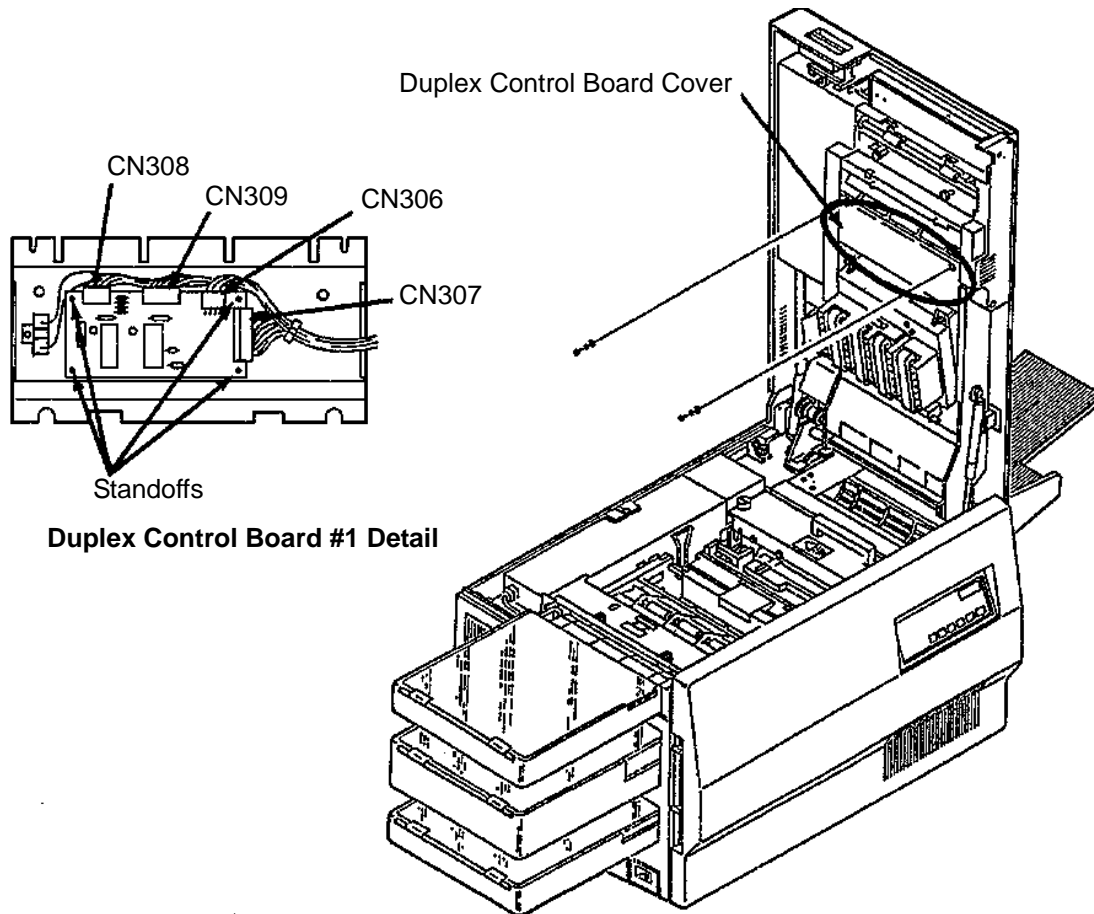
- 1 Open the back cover.
- 2 Remove the lower back cover. (See [page 7-7.](#))
- 3 Remove the paper feed drive cover (three screws).
- 4 Remove the fuser drive cover (three screws).
- 5 Remove the main drive cover (one screw).
- 6 Remove the gear stay cover (one screw).
- 7 Remove the gear stay (three screws).
- 8 Remove the cleaner drive belt. (See [page 7-54.](#))
- 9 Remove the paper feed drive belt. (See [page 7-58.](#))
- 10 Remove the main gear drive (three screws).



Duplex Control Board #1 Removal

To remove duplex control board #1:

- 1 Open the top cover.
- 2 Remove the duplex control board cover (two screws).
- 3 Disconnect CN306, CN307, CN308, and CN309.
- 4 Disengage duplex control board #1. To do this, pinch the four standoffs on the board one at a time.
- 5 Lift the board from the mounting bracket.

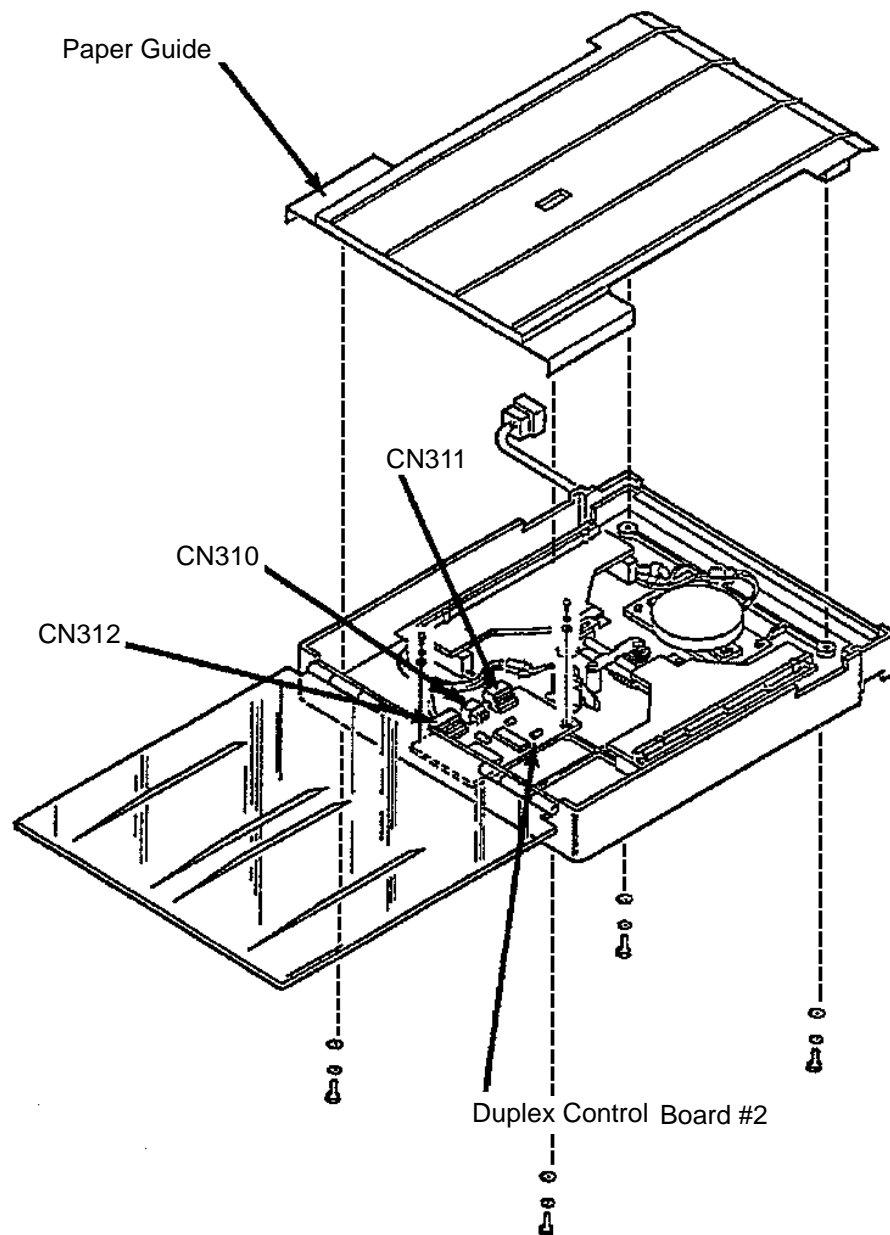


Duplex Control Board #2 Removal

Duplex Control Board #2 Removal

To remove duplex control board #2:

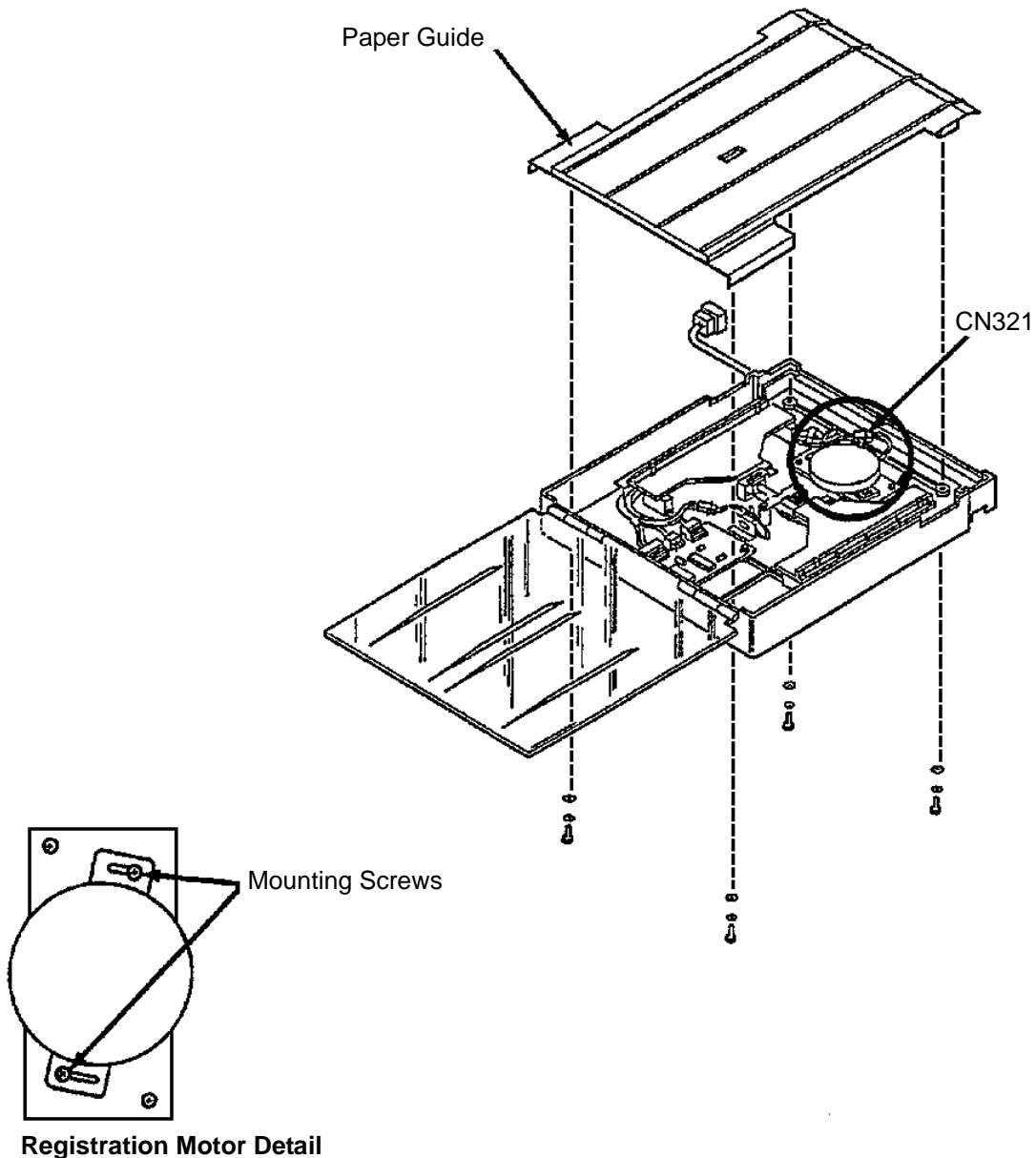
- 1 Open the top cover.
- 2 Remove the duplex tray.
- 3 Remove the paper guide from the duplex tray (four screws).
- 4 Disconnect CN310, CN311, and CN312.
- 5 Remove duplex control board #2 (two screws).



Duplex Tray Registration Motor Removal

To remove the duplex tray registration motor:

- 1 Open the top cover.
- 2 Remove the duplex tray.
- 3 Remove the paper guide inside the duplex tray (four screws).
- 4 Disconnect CN321.
- 5 Remove the registration motor (two screws).



Duplex Skew Correction Cable Removal

To remove the duplex skew correction cable:

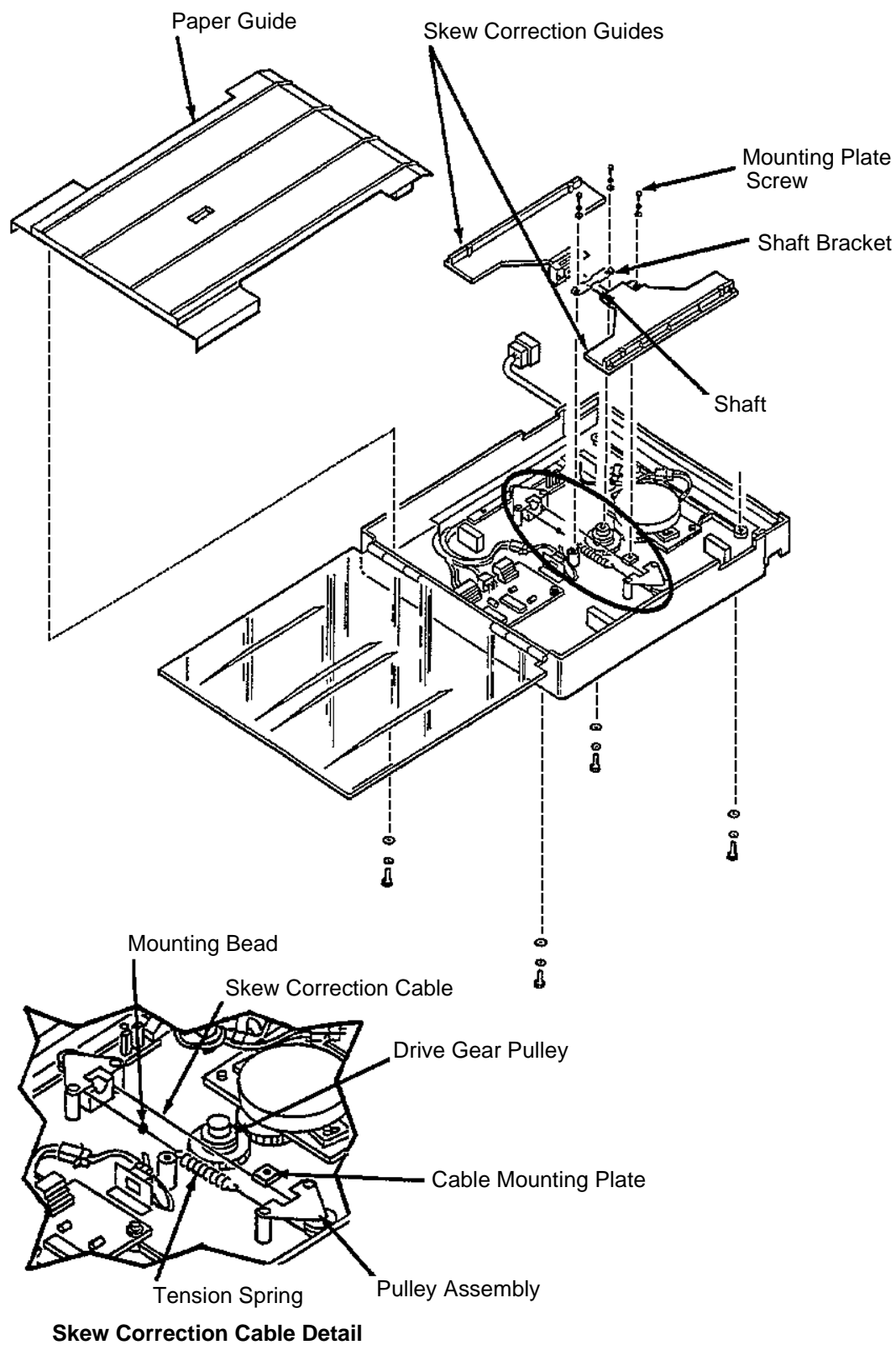
- 1** Open the top cover.
- 2** Remove the duplex tray.
- 3** Remove the paper guide from inside the duplex tray (four screws).
- 4** Slide the skew correction guides toward the center of the duplex tray.
- 5** Remove the bracket holding the shaft in place (two screws).
- 6** Remove the screw holding the cable mounting plate in place.
- 7** Lift the skew correction guides and shaft up out of the duplex tray.
- 8** Remove two screws holding each pulley assembly in place.
- 9** Remove the spring from the cable.
- 10** Lift the skew correction cable and pulley assemblies from the duplex tray.

Replacement Notes:

The placement of the mounting bead is critical. Set it on precisely. Replace parts in this order:

- First reinstall the pulley assembly.
- Then, wrap the cable three times around the drive gear pulley.
- Finally, connect the spring.

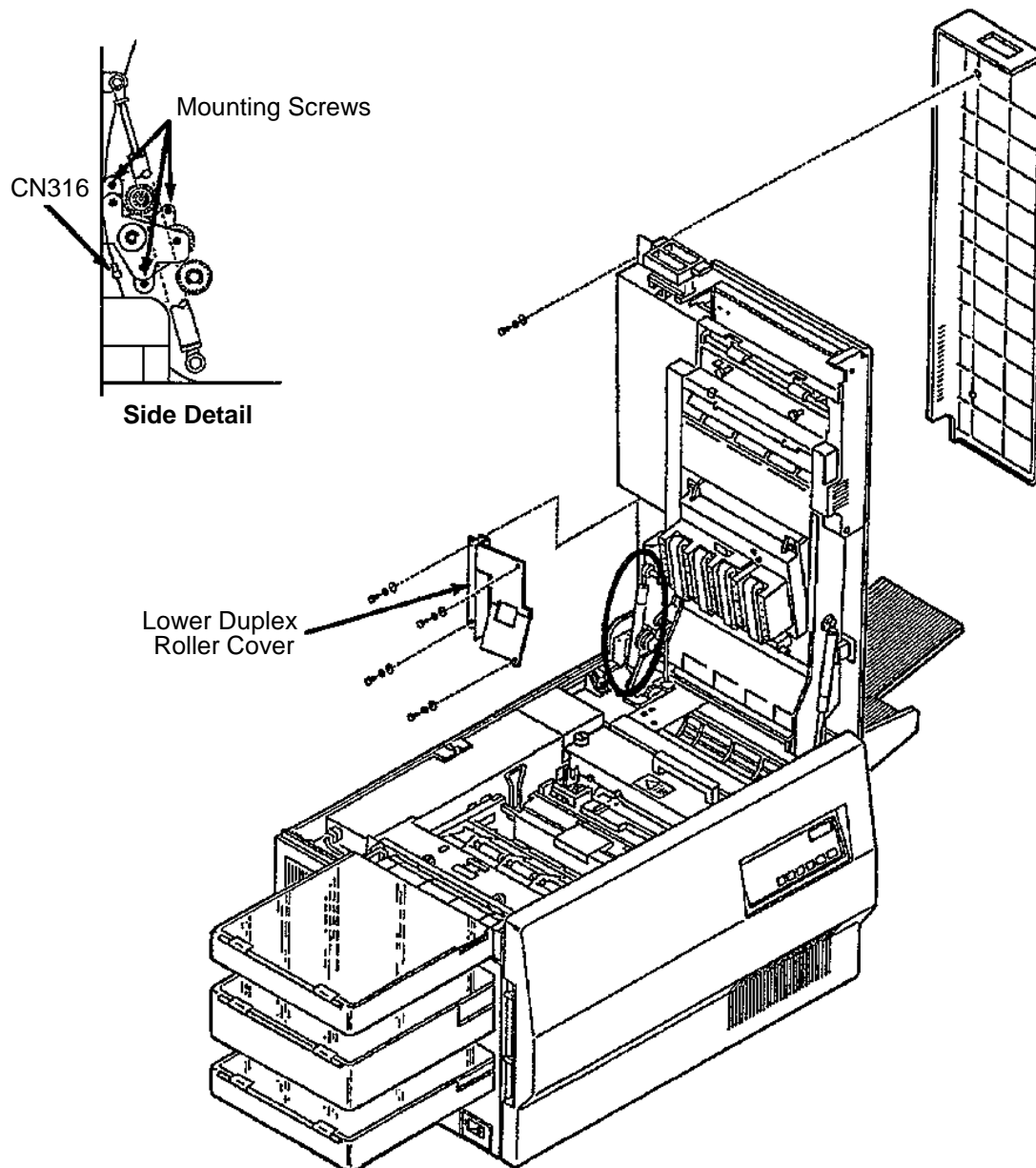
Duplex Skew Correction Cable Removal



Upper Duplex Drive/Clutch Assembly Removal

To remove the upper duplex drive/clutch assembly:

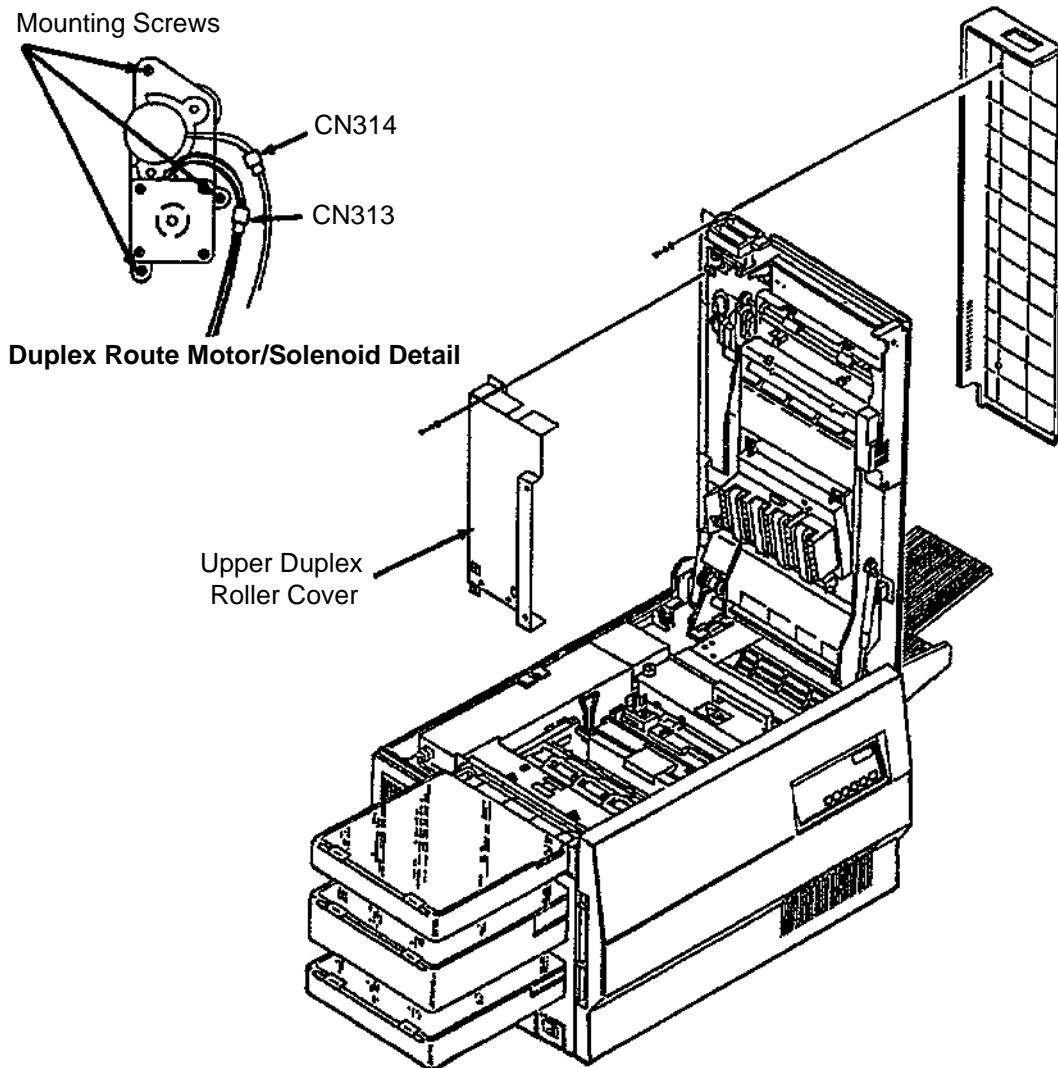
- 1 Open the top cover.
- 2 Remove the rear duplex cover. (See [page 7-17.](#))
- 3 Remove the lower duplex roller cover (four screws).
- 4 Disconnect CN316.
- 5 Remove the upper duplex drive/clutch assembly (three screws).



Duplex Route Motor/Solenoid Assembly Removal

To remove the duplex route motor/solenoid assembly:

- 1 Open the top cover.
- 2 Remove the rear duplex cover. (See [page 7-17.](#))
- 3 Remove the upper duplex roller cover (four screws).
- 4 Disconnect CN313 and CN314.
- 5 Remove the duplex route motor/solenoid assembly (three screws).

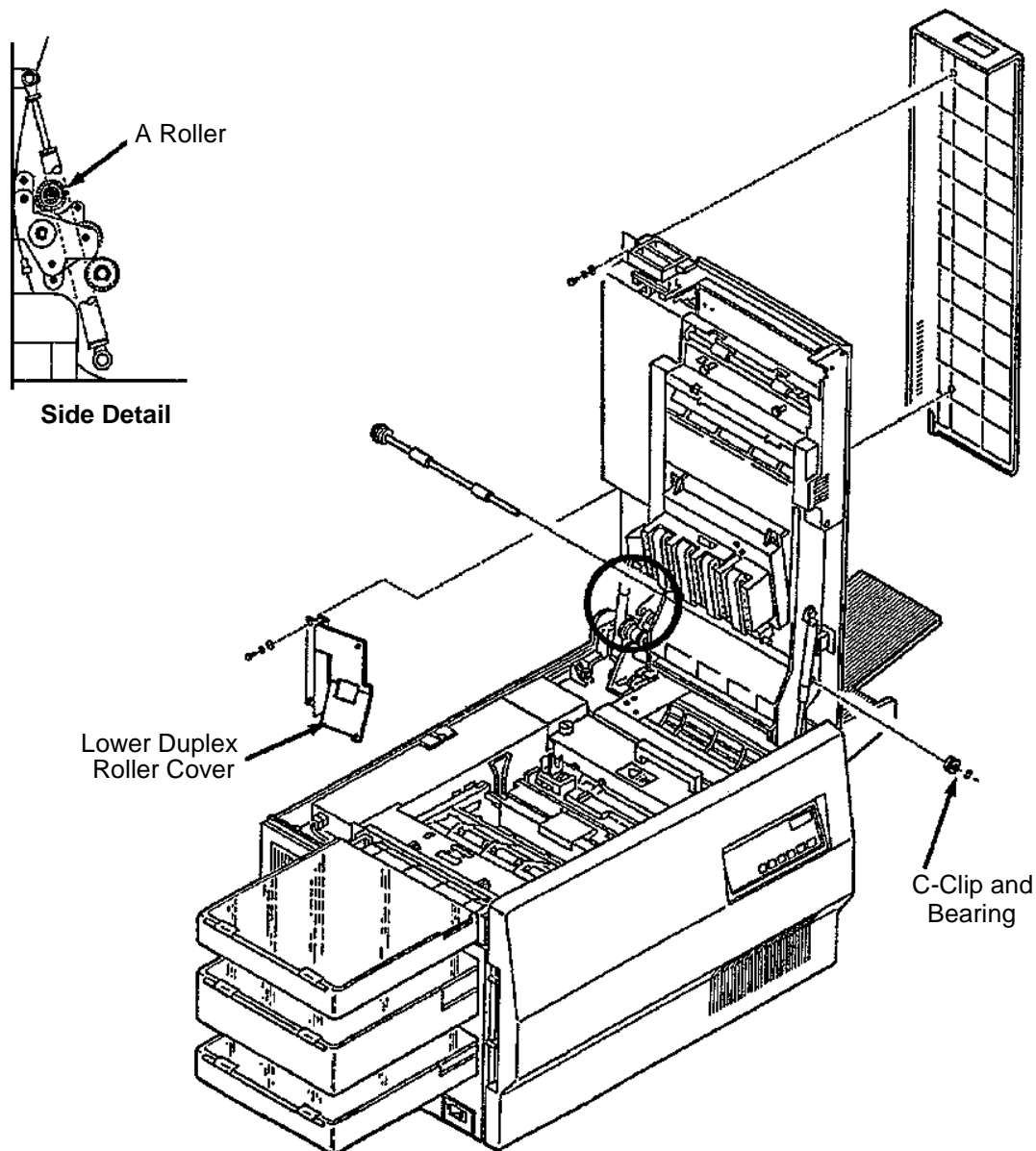


"A" Roller Removal

"A" Roller Removal

To remove the "A" roller:

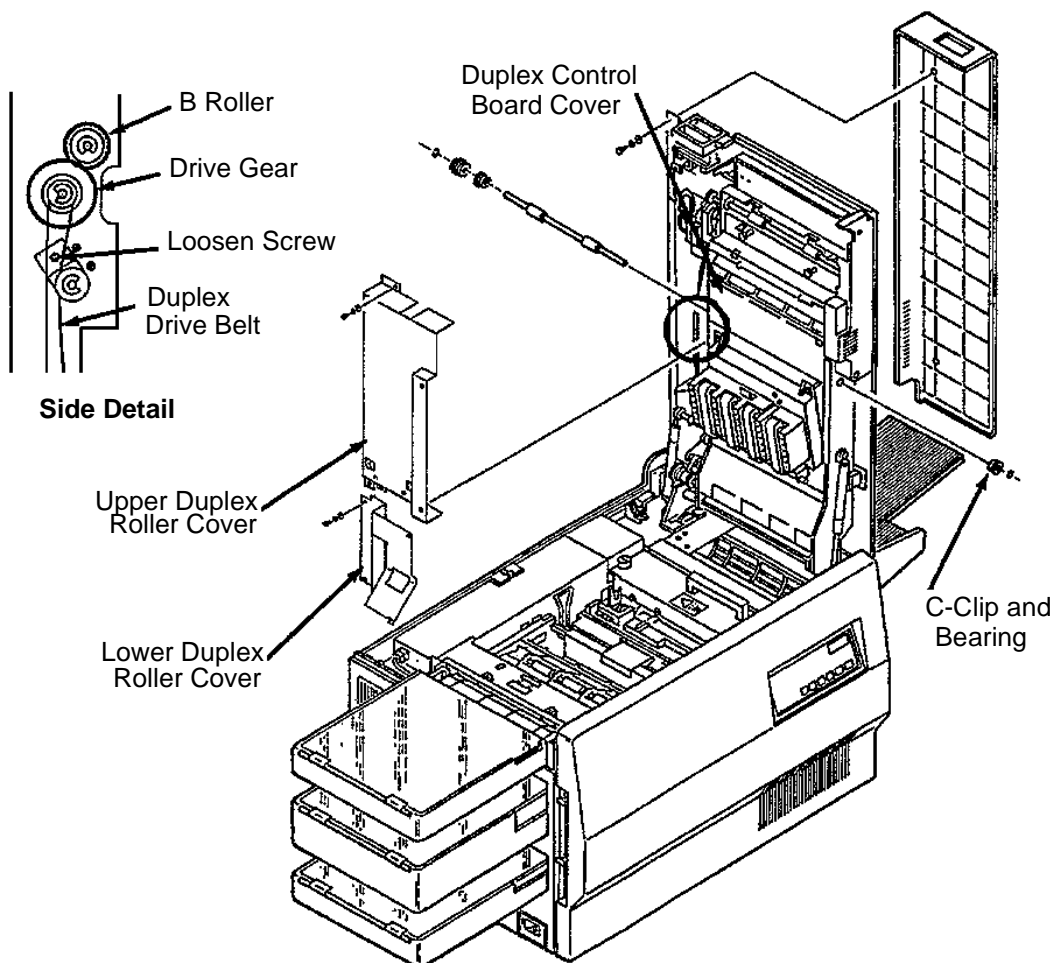
- 1 Open the top cover.
- 2 Remove the rear duplex cover. (See [page 7-17.](#))
- 3 Remove the lower duplex roller cover (four screws).
- 4 Remove the front C-clip and bearing from the "A" roller.
- 5 Lower the top cover to a 45 degree angle.
- 6 Slide the "A" roller out the back of the printer.



“B” Roller Removal

To remove the “B” roller:

- 1 Open the top cover.
- 2 Remove the rear duplex cover. (See [page 7-17.](#))
- 3 Remove the upper duplex roller cover (four screws).
- 4 Remove the lower duplex roller cover (four screws).
- 5 Remove the front C-clip and bearing from the “B” roller.
- 6 Remove two screws holding the duplex control board cover in place.
- 7 Move the cover to the left out of the way.
- 8 Loosen the screw holding the idler roller in place.
- 9 Remove the duplex drive belt.
- 10 Remove the drive gear (single C-clip).
- 11 Slide the “B” roller out from the back of the printer.

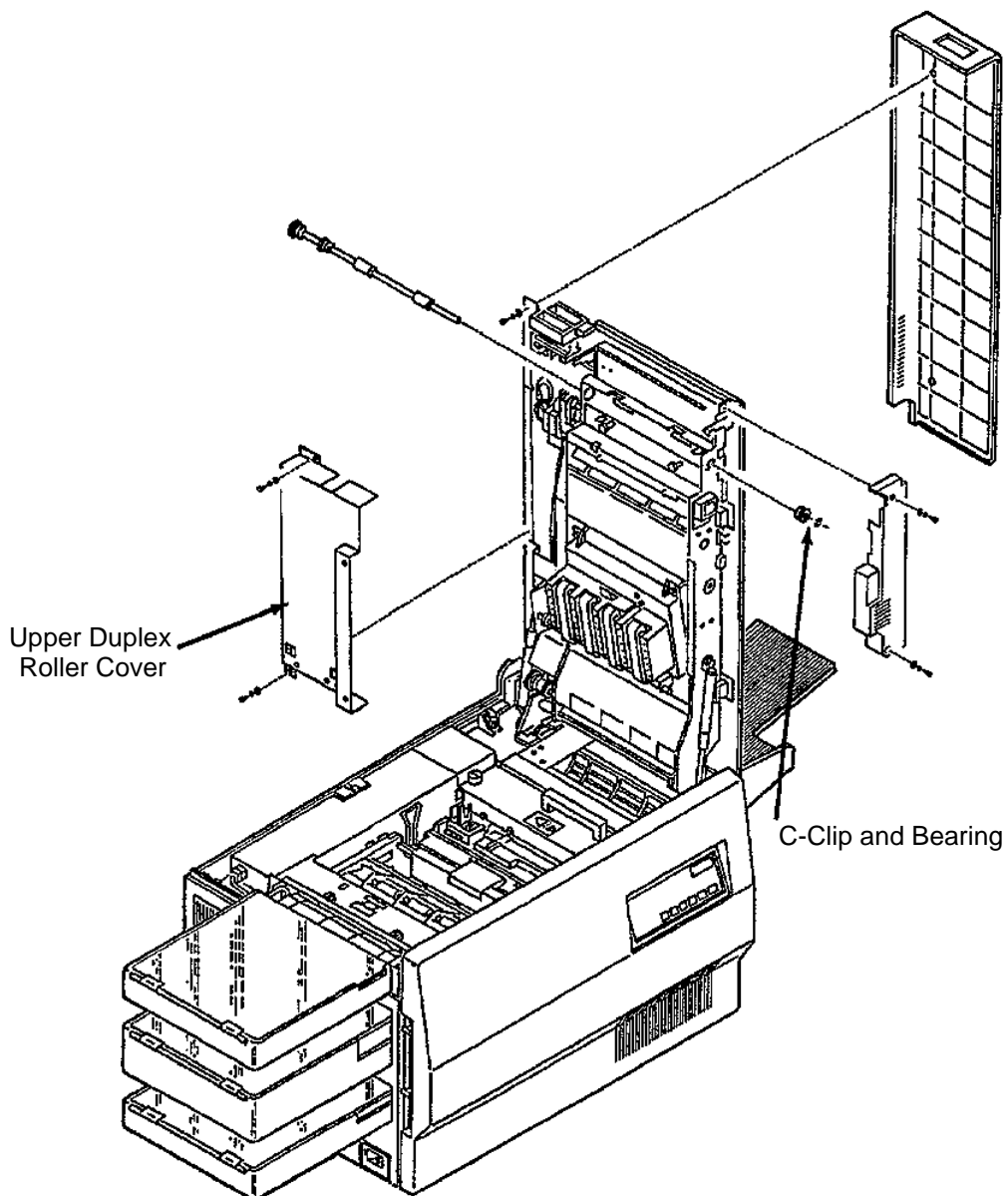


"C" Roller Removal

"C" Roller Removal

To remove the "C" roller:

- 1 Open the top cover.
- 2 Remove the rear duplex cover. (See [page 7-17.](#))
- 3 Remove the upper duplex roller cover (four screws).
- 4 Remove the front mechanism cover (two screws).
- 5 Remove the front C-clip and bearing from the "C" roller.
- 6 Slide the "C" roller out from the back of the printer.



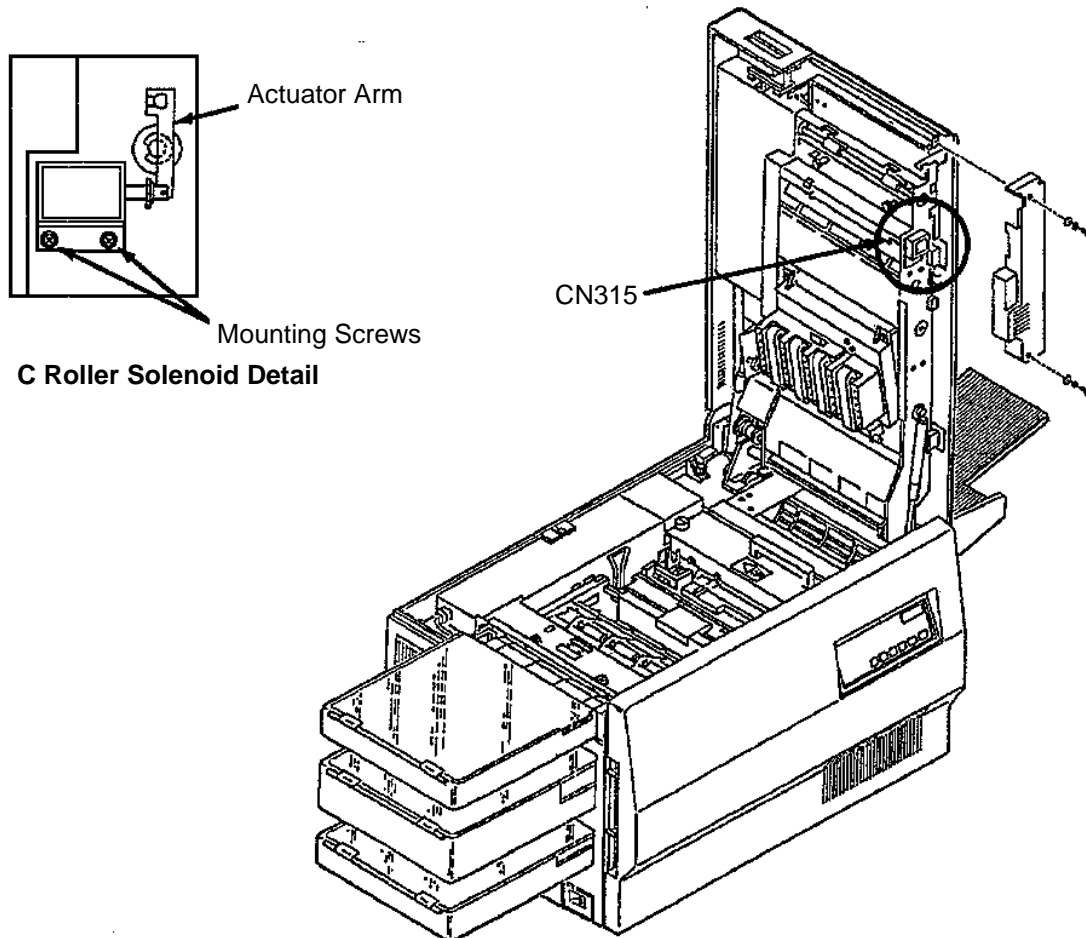
"C" Roller Solenoid Removal

To remove the "C" roller solenoid:

- 1 Open the top cover.
- 2 Remove the front mechanism cover (two screws).
- 3 Disconnect CN315 and cut the cable tie securing the wires to the mounting plate.
- 4 Remove the two screws holding the "C" roller solenoid in place.
- 5 Loosen the set screw securing the actuator arm to the "C" roller.
- 6 Disengage the solenoid from the actuator arm and remove it.

Replacement Note:

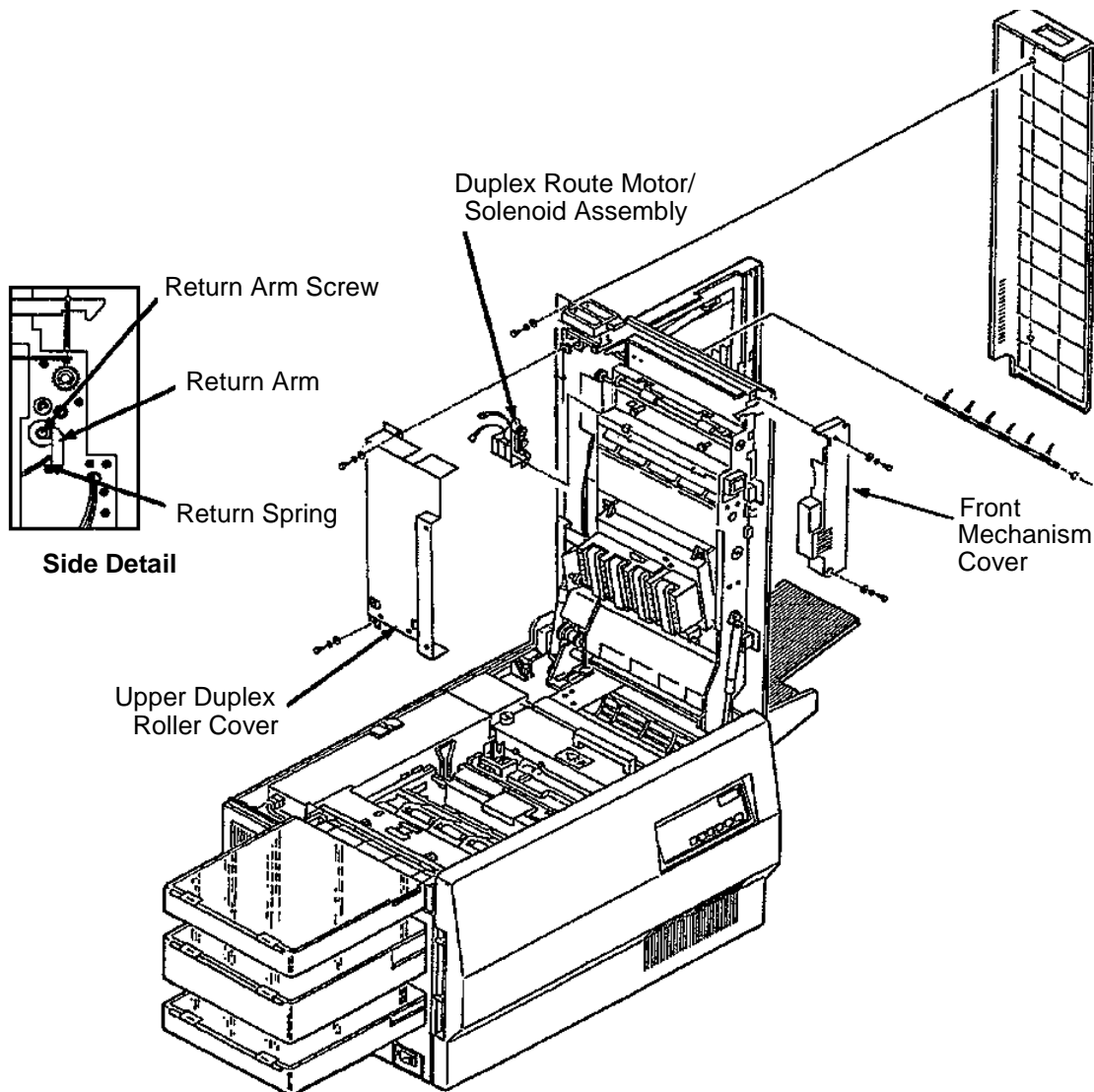
Install a new cable tie to secure the wires from CN315 to the mounting plate.



Duplex Route Separator Removal

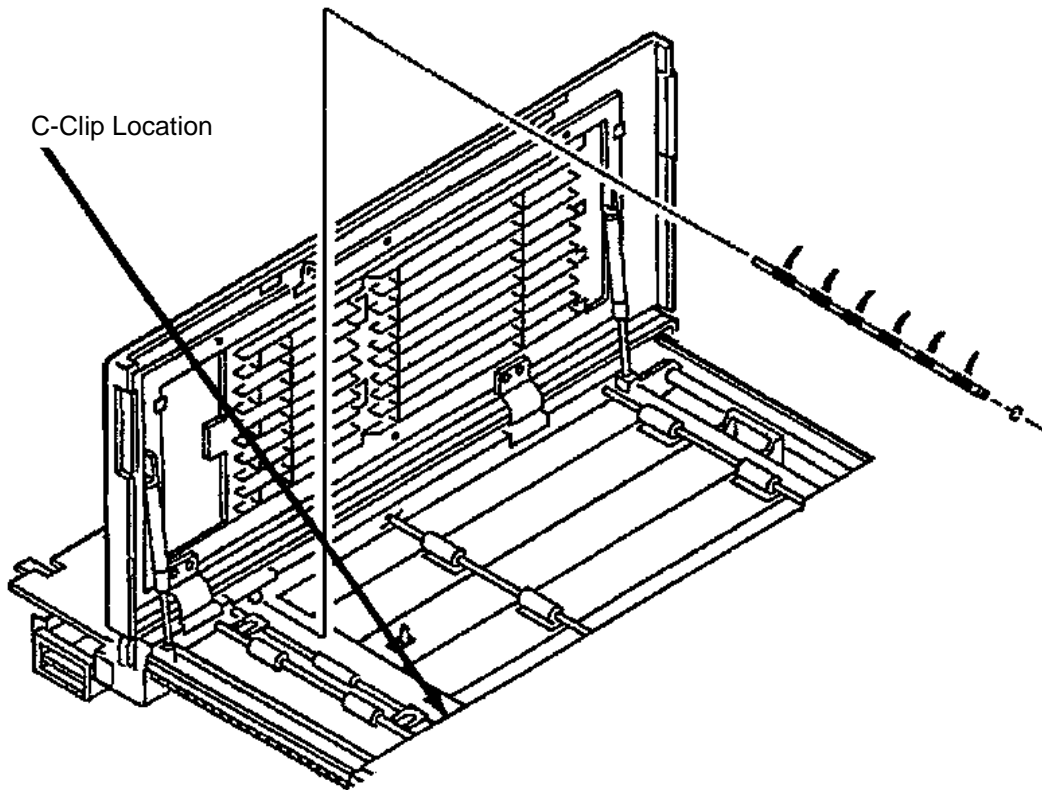
To remove the duplex route separator:

- 1 Open the top cover.
- 2 Remove the rear duplex cover. (See [page 7-17.](#))
- 3 Remove the upper duplex roller cover (four screws).
- 4 Remove the duplex route motor/solenoid assembly. (See [page 7-95.](#))
- 5 Remove the front mechanism cover (two screws).
- 6 Open the duplex cover.
- 7 Remove screw holding the return arm in place.
- 8 Disengage the return spring.



Duplex Route Separator Removal

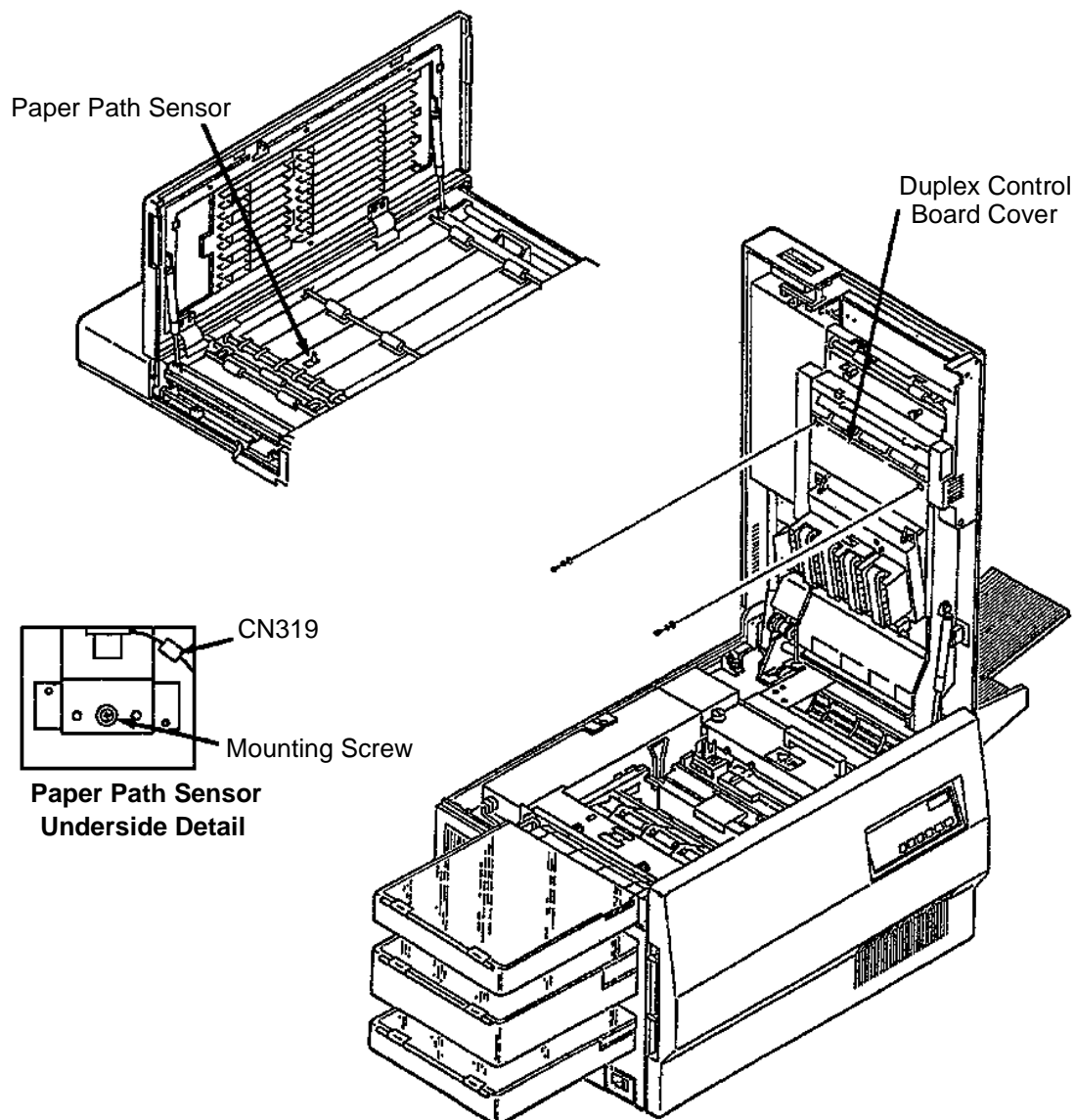
- 9 Remove the front C-clip from the route separator.
- 10 Disengage the route separator from its side supports.
- 11 Lift the route separator out from the duplex cover.



Duplex Paper Path Sensor Removal

To remove the duplex paper path sensor:

- 1 Open the top cover.
- 2 Remove the two screws holding the duplex control board cover in place.
- 3 Move the cover to the left out of the way.
- 4 Disconnect CN319.
- 5 Remove the duplex paper path sensor (single screw).



Chapter 8

Options

Contents

Options

Introduction	8-3
1200-Sheet/2500-Sheet Feeder	8-4
Bench Test Procedure	8-5
Prefeed Adjustment Procedure	8-6
Input Control Board Logic	8-7
1400-Sheet Stacker	8-9
Bench Test Procedure	8-10
Connector Locations	8-12
Output Control Board Logic	8-14

Introduction

This section provides information about specific printer options not covered elsewhere in the manual. These options include the 1200-sheet and 2500-sheet feeders, the 1400-sheet stacker, and the enhanced video model of the printer.

For a complete list of the parts contained in the 1200-sheet feeder, the 2500-sheet feeder, and the 1400-sheet stacker, please see the *Illustrated Parts Catalog*.

1200-Sheet/2500-Sheet Feeder

Table 8-1. 1200-Sheet/2500-Sheet Component Acronyms

Acronym	Component
DSW	Door Switch (magnetic door lock)
IEM	Input Elevator Motor (M1 – elevator motor)
ILLS	Input Lower Limit Sensor
IPES	Input Paper Tray Sensor
IPM	Input Pick-up Motor (M2 – paper pick-up motor)
IULS	Input Upper Limit Sensor
NF	AC Noise Filter
NPS	No Paper Solenoid
PCSW	Power Control Switch (slope tray interlock switch)
PES	Paper End Sensor
PHS	Paper Head Sensor
SOL	Solenoid

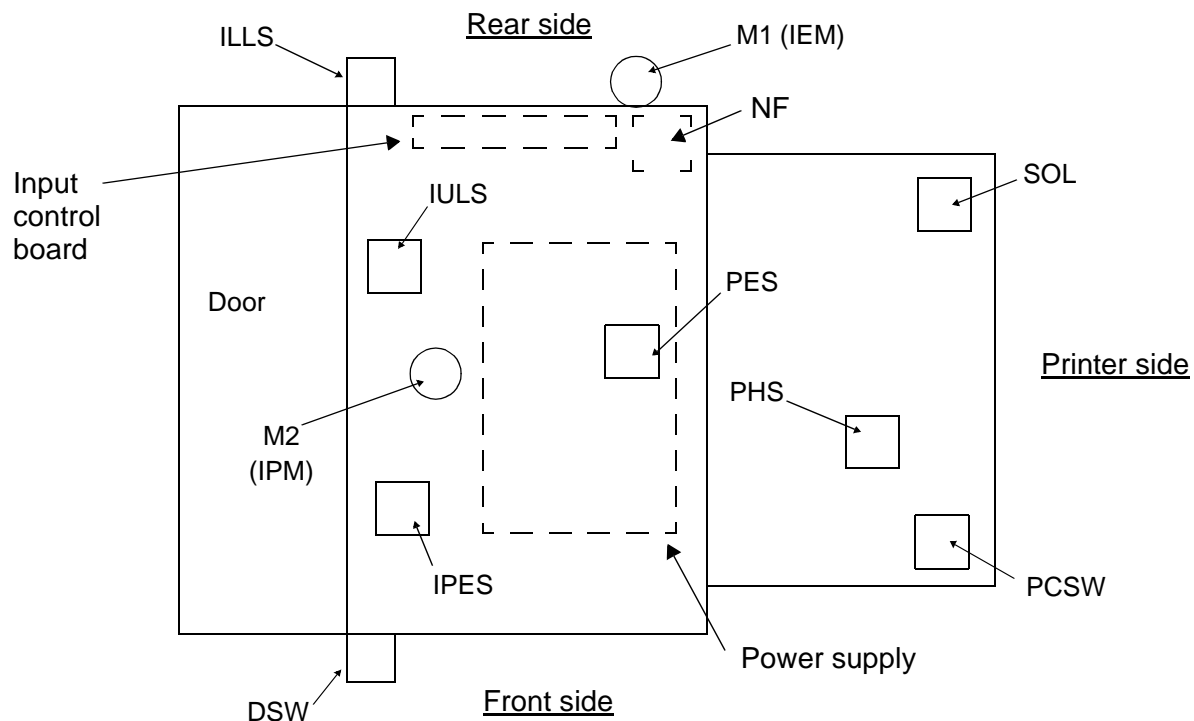


Figure 8-1. 1200-Sheet/2500-Sheet Physical Locations

Bench Test Procedure

The bench test procedure references the component acronyms in [Table 8-1 on page 8-4](#) and the component locations in [Figure 8-1 on page 8-4](#). To bench test the printer:

- 1 Turn the printer's main power switch off, then disconnect the unit's power cord.
- 2 Press down the printer's lower cassette release lever, then remove the unit from the printer and place it on a work bench or other suitable surface.
- 3 Remove the paper size lever, then lift up the slope tray and place the lever between the slope tray and the frame. This will bypass the interlock switch (PCSW) located under the slope tray, allowing 12 Vdc to be applied to the input control board.

Note: The slope tray is normally lifted into operating position by the printer's lower paper lift arm.

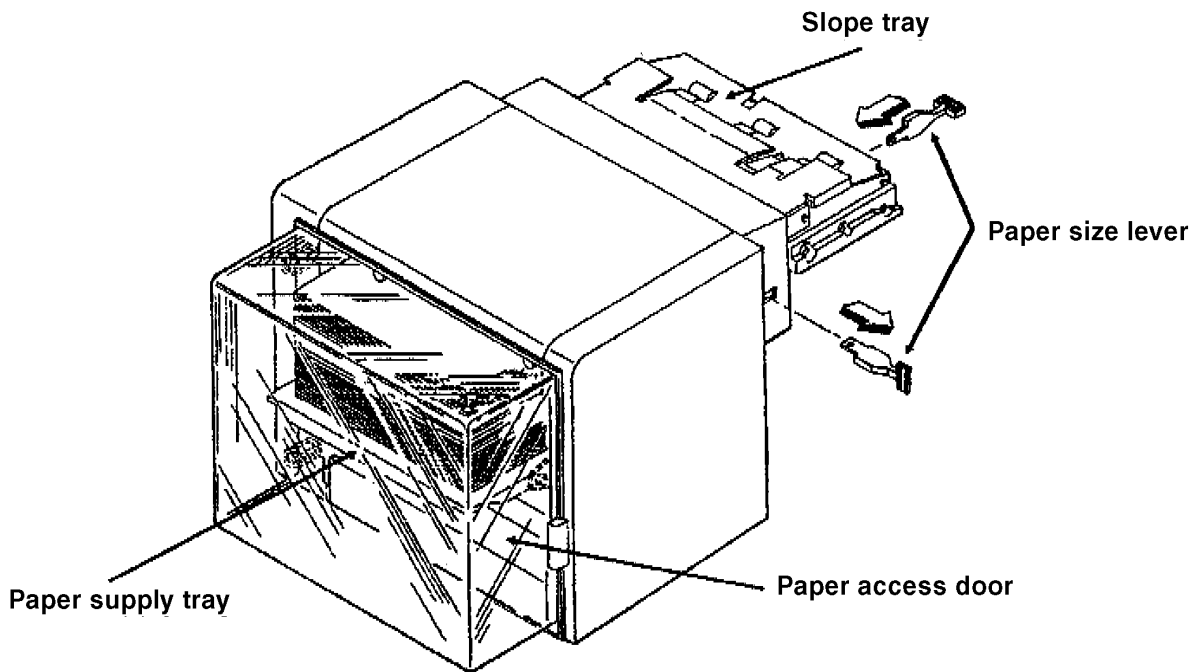


Figure 8-2. Bench Test Procedure

- 4 Restore AC power to the unit (either the unit's power cord or the printer's power cord may be used).
- 5 Open the paper access door. The elevator motor (M1) should turn on, moving the paper stock down. There is an actuator attached to the elevator's chain drive that will activate photosensor ILLS signalling the input control board that the paper supply tray is completely down.

Note: Remove any paper that may be on the unit's slope tray

- 6 Close the paper access door. The elevator motor (M1) should turn on, moving the paper stack up. There are two actuators that must enable two photosensors. Photosen-

sor IPES signals the input control board that paper is present on the elevator. Photosensor IULS signals the input control board that the upper limit for the paper supply tray and paper stack has been reached.

- 7 With the paper supply tray all the way up and with no paper present on the slope tray (indicated to the input control board by photosensor PES, located in the middle of the paper path), the pick-up roller assembly motor (M2) will turn on and transport a piece of paper to the slope tray.
- 8 When the paper is transported to the slope tray, note that the (SOL) solenoid (under the slope tray) energizes.

Note: The solenoid causes contact with the printer's paper present sensor.

- 9 By removing the piece of paper from the slope tray, photosensor PHS signals the input control board to turn the pick-up motor (M2) on to replace the piece of paper that was removed.
- 10 When the last sheet of paper has been fed from the paper supply tray to the slope tray, the actuator arm of photosensor IPES falls through a hole in the paper supply tray. This signals the input control board to turn the elevator motor (M1) on to move the paper supply tray down. The paper supply tray will remain down until the paper access door is reopened (more paper is loaded), then closed.
- 11 When the last sheet of paper has been removed from the slope tray, confirm that the solenoid (SOL) de-energizes.

Prefeed Adjustment Procedure

This procedure should only be done if you are replacing the control board or experiencing excessive paper jams.

- 1 Remove the side, top, and throat covers from the unit.
- 2 Disconnect J509.
- 3 Using the bench test procedure, feed paper to the slope assembly.
- 4 Set VR2 fully counter clockwise.
- 5 Adjust VR1 so that the paper feeds to 20 to 30 mm (approximately 1 inch) past the bend of the slope assembly.

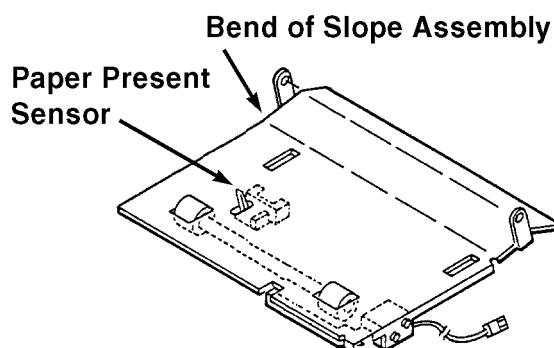


Figure 8-3. Slope Assembly Prefeed Adjustment

Input Control Board Logic

The table below indicates switching logic for the unit's various components. Except for the power control switch (PCSW), each component can be monitored from the various pins of CN508 (located on the input control board).

When performing these checks, use test point TP 1 (located below CN507 on the input control board).

Table 8-2. Monitoring Input Control Board Logic at Connector CN508

Connector	Component	Monitored	Condition
CN508-4	PHS	High Low	Paper present No paper present
CN508-13	PES	High Low	Paper present No paper present
CN508-19	IPES	High Low	Paper present No paper present
CN508-16	IULS	High Low	Limit No Limit
CN508-21	DSW	High Low	Door open Door closed
CN508-10	ILLS	High Low	Limit No Limit
CN508-2	NPS	High Low	ON Off
CN508-25, 26	IPM (M2)	+12 Vdc 0 Vdc	Feed No feed
CN508-23	IEM (M1)	+12 Vdc 0 Vdc	Up Off
CN508-24	IEM (M1)	+12 Vdc 0 Vdc	Down Off
CN507-2	PCSW	0 Vdc +12 Vdc	Unit mounted Unit not mounted

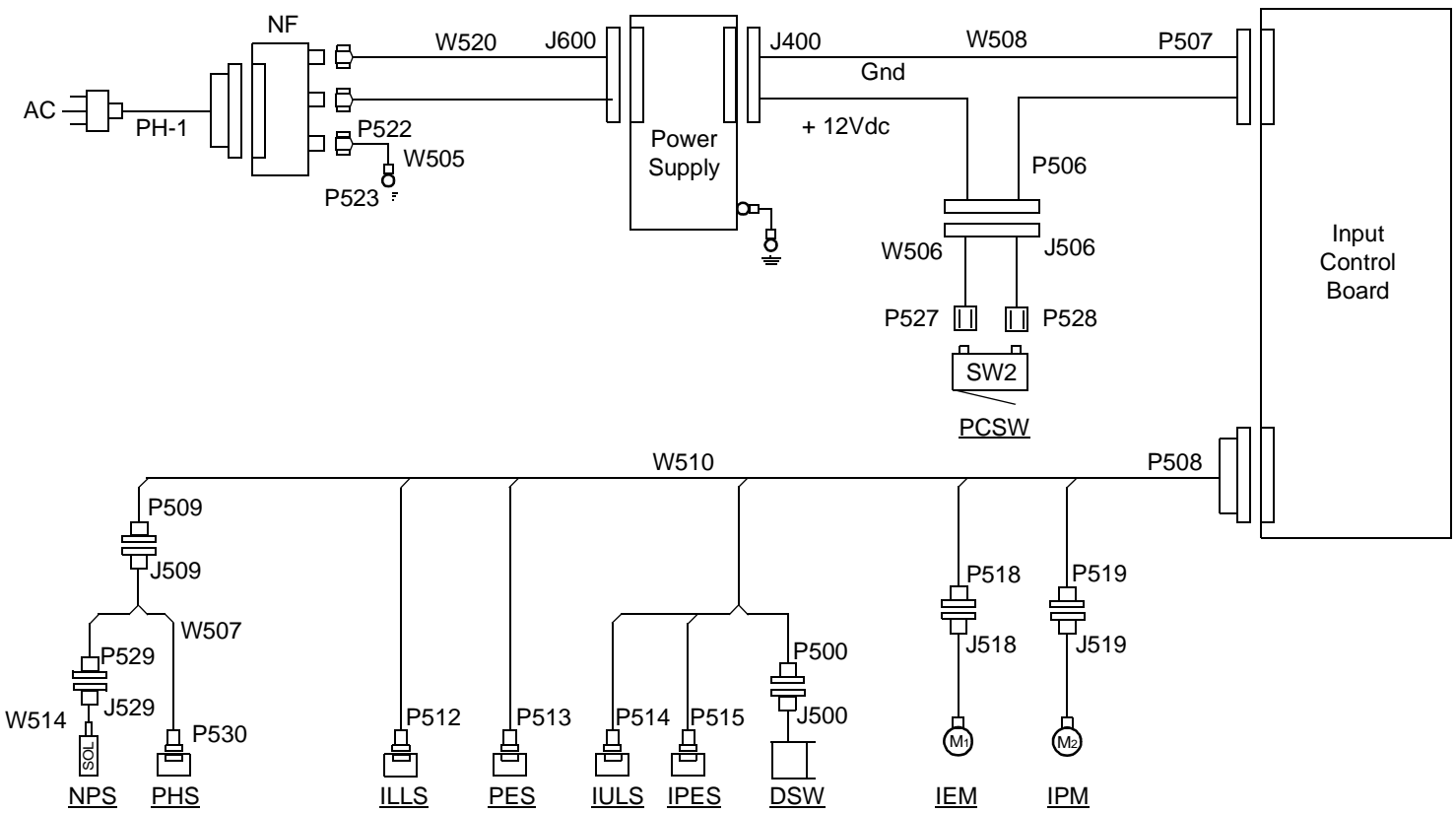


Figure 8-4. Connection Diagram for 1200-Sheet/2500-Sheet Feeder

1400-Sheet Stacker

Table 8-3. 1400-Sheet Stacker Component Acronyms

Acronym	Component
ERM	Exit Roller Motor (M1)
EPS	Exit Paper Sensor
ERS	Exit Roller Sensor
OEM	Out Elevator Motor (M2)
OELS	Out Elevator Limit Sensor
OEPS	Out Exit Paper Sensor
OJFM	Out Jogging Front Motor (M4)
OJFS	Out Jogging Front Sensor
OJRM	Out Jogging Rear Motor (M3)
OJRS	Out Jogging Rear Sensor
OLLS	Out Lower Limit Sensor
OULS	Out Upper Limit Sensor

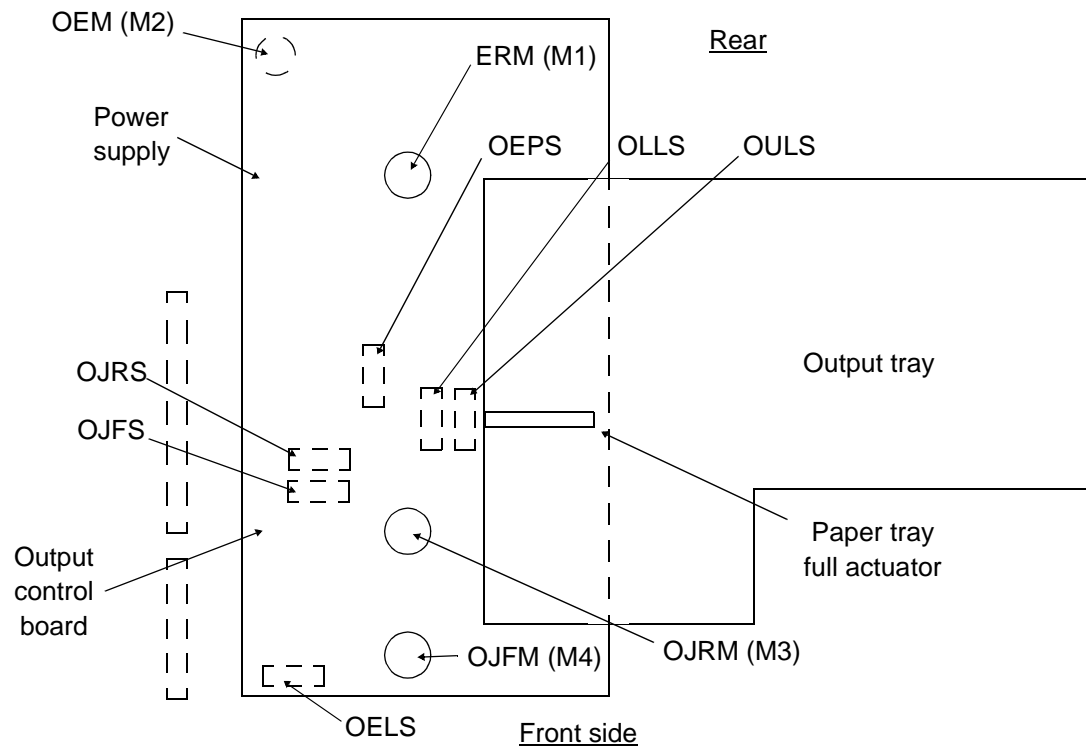


Figure 8-5. 1400-Sheet Stacker Component Locations

Bench Test Procedure

The bench test procedure references the component acronyms in [Table 8-3 on page 8-9](#) and the component locations in [Figure 8-5 on page 8-9](#).

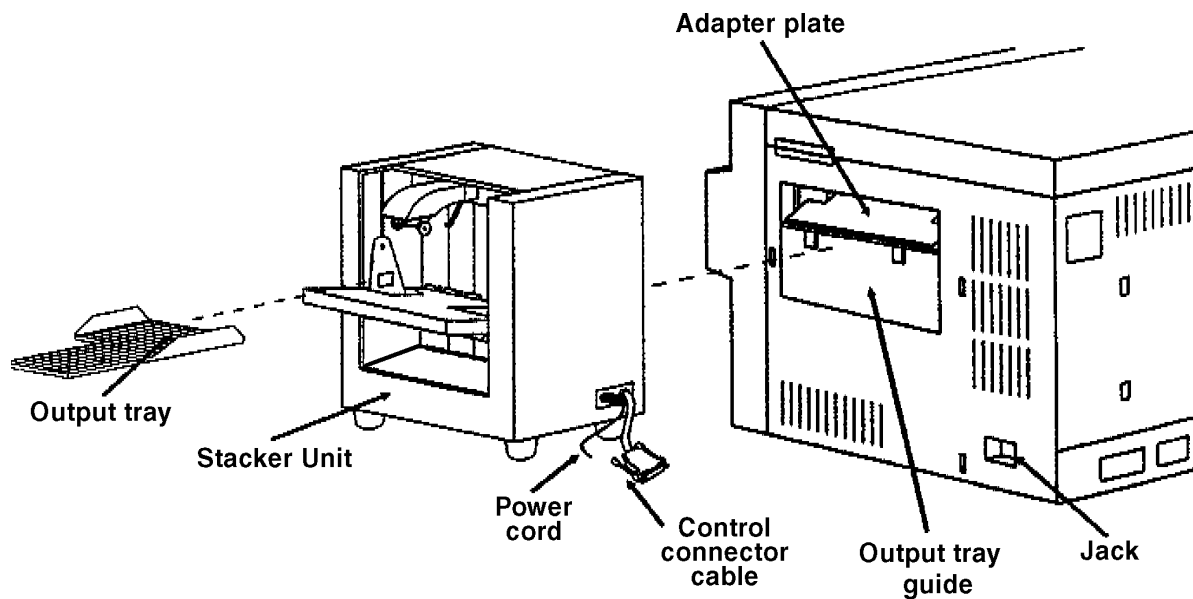
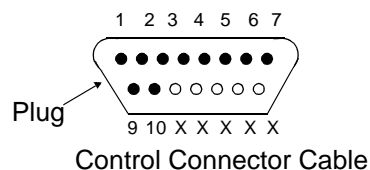


Figure 8-6. 1400-Sheet Stacker Bench Test Preparation

To bench test the 1400-sheet staker:

- 1 Turn the printer's main power switch off.
- 2 Remove the output tray from the staker unit.
- 3 Disconnect the staker unit's power cord from the printer and from the staker, then disconnect the unit's control connector cable from the printer's jack.
- 4 Remove the staker unit from the printer, then place it on a work bench or other suitable surface.
- 5 Remove the printer's power cord from the wall outlet and the printer's lower back cover.
- 6 Observe the pin configuration of the staker unit's control connector cable plug .



- 7** Place a jumper from pin 9 to pin 10 (ground). Using the printer's power cord in place of the unit's power cord, plug the printer's power cord in the stacker unit, then into the wall outlet.
- 8** With the power applied to the stacker unit, the exit roller motor (ERM-M1) will be off. This will signal the output control board to turn the exit roller motor (ERM-M1) on.
- 9** Remove the jumper from pin 9 and pin 10.
- 10** Lift the paper tray full actuator to enable photosensor OLLS to signal the output control board to cause the elevator motor (OEM-M2) to turn on and lower the output tray guide.
- 11** As the output tray guide reaches its lowest allowable position, photosensor OELS is enabled and signals the output control board to turn the elevator motor (OEM-M2) off.
- 12** Releasing the paper tray full actuator then enables photosensor OULS to signal the output control board to turn the elevator (OEM-M2) on and raise the output tray guide.
- 13** As the output tray guide reaches its highest allowable position, the paper tray full actuator enables both photosensor OLLS and photosensor OULS, which in turn signal the output control board to turn the elevator motor (OEM-M2) off.
- 14** Disconnect the power cord from the stacker, then place a jumper from pin 3 to pin 6 and a second jumper from pin 2 to pin 7.
- 15** Reconnect the power cord, then (from the printer side of the unit) insert a folded piece of paper into the unit to trigger the actuator and enable photosensor OEPS. This will signal the output control board to turn the jogging rear motor (OJRM-M3) on.
- 16** After jogging has occurred, remove the piece of paper then reinsert it. This will again trigger the actuator and enable photosensor OEPS. This will signal the output control board to turn the jogging front motor (OJFM-M4) on.
- 17** The procedure is completed. Disconnect the power cord, remove the jumpers, then reinstall the unit into the printer.

Connector Locations

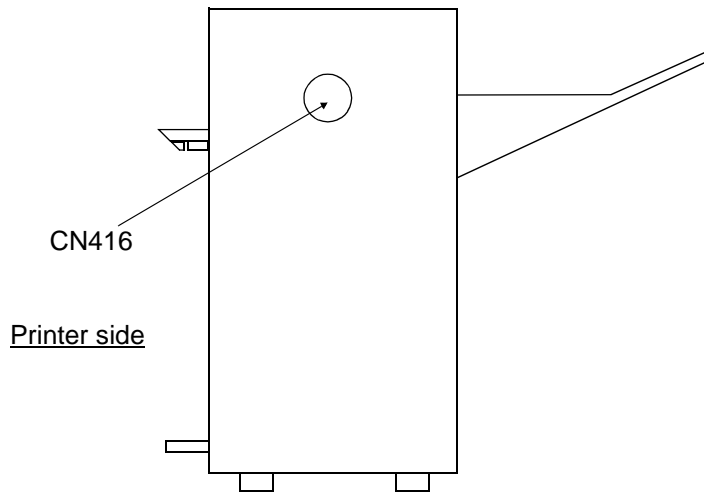


Figure 8-7. Connector Locations (front view, cover removed)

Connectors/circuit boards shown with broken lines are concealed from view.

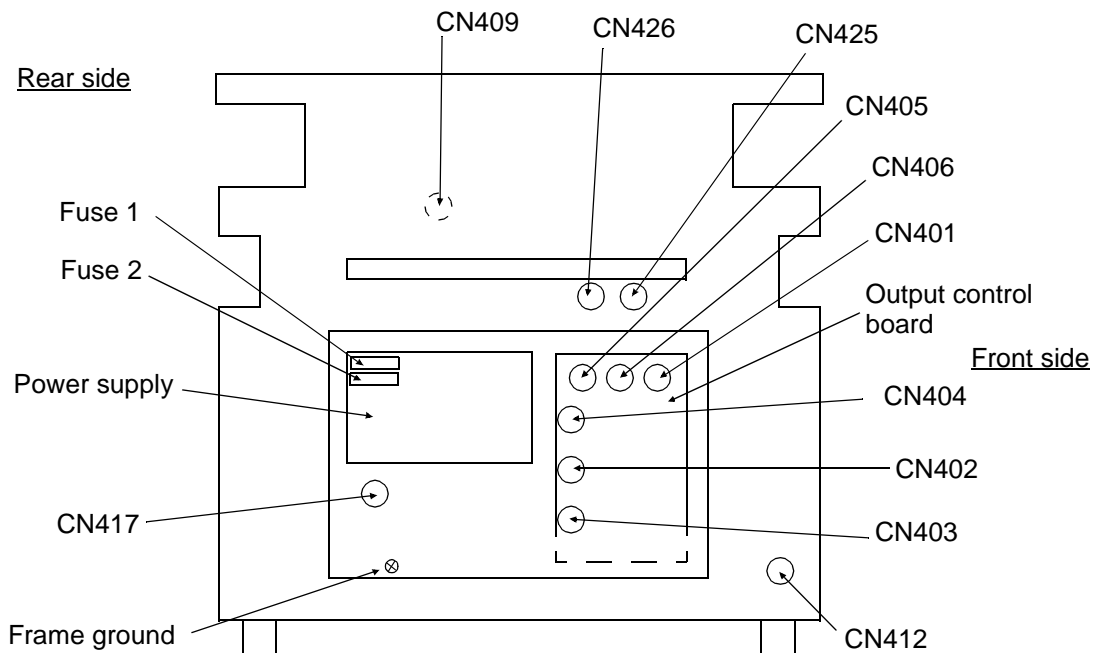


Figure 8-8. Connector Locations (left side view, left cover removed)

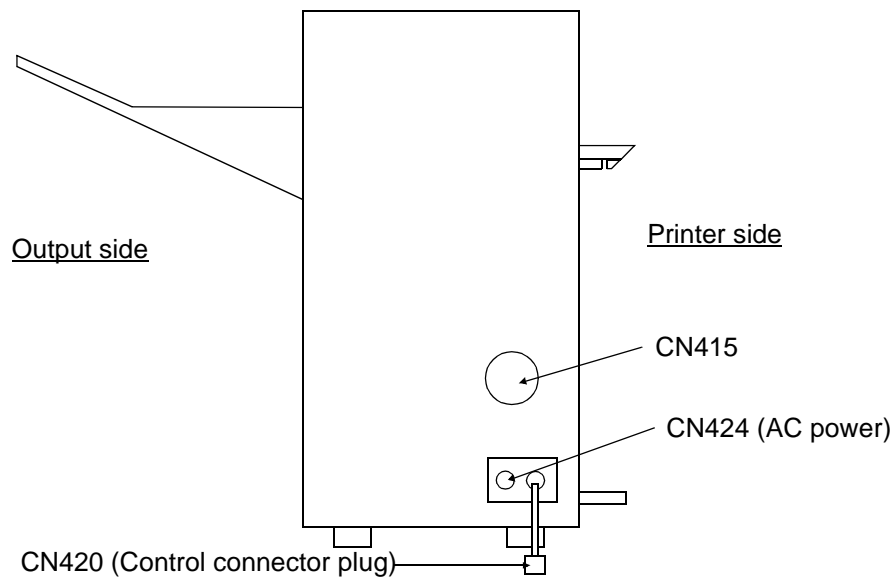


Figure 8-9. Rear Side View (cover removed)

Connectors/circuit boards shown with broken lines are concealed from view.

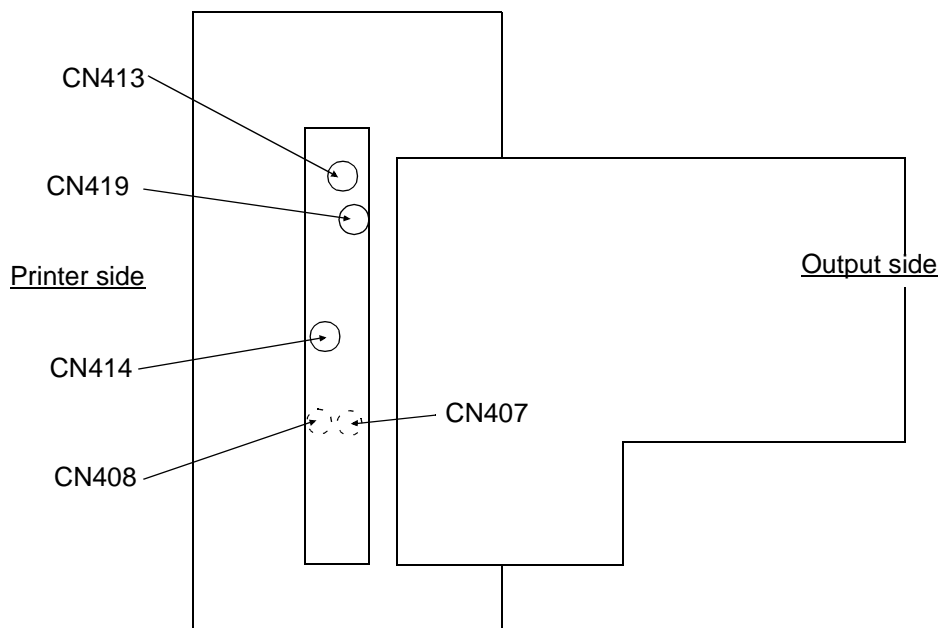


Figure 8-10. Top View (top cover removed)

Output Control Board Logic

The table below details specific stacker actions and which sensors supply the signals needed for each action. Signals from the printer are also included.

Table 8-4. Stacker Actions and Sensor Inputs

Action	Sensor Input
Elevator up (Wait signal to printer)	OULS OLLS OELS
Elevator stop	OULS OLLS OELS
Remove prints (signal to printer)	OULS OLLS OELS
Elevator down	OULS OLLS OELS
Paper exit	EPS OEPS
Paper exit jam (023)	OEPS
Jogging start	From printer
Jogging	ERS (from printer) OJRS OEPS OJFS
Jogging stop	From printer

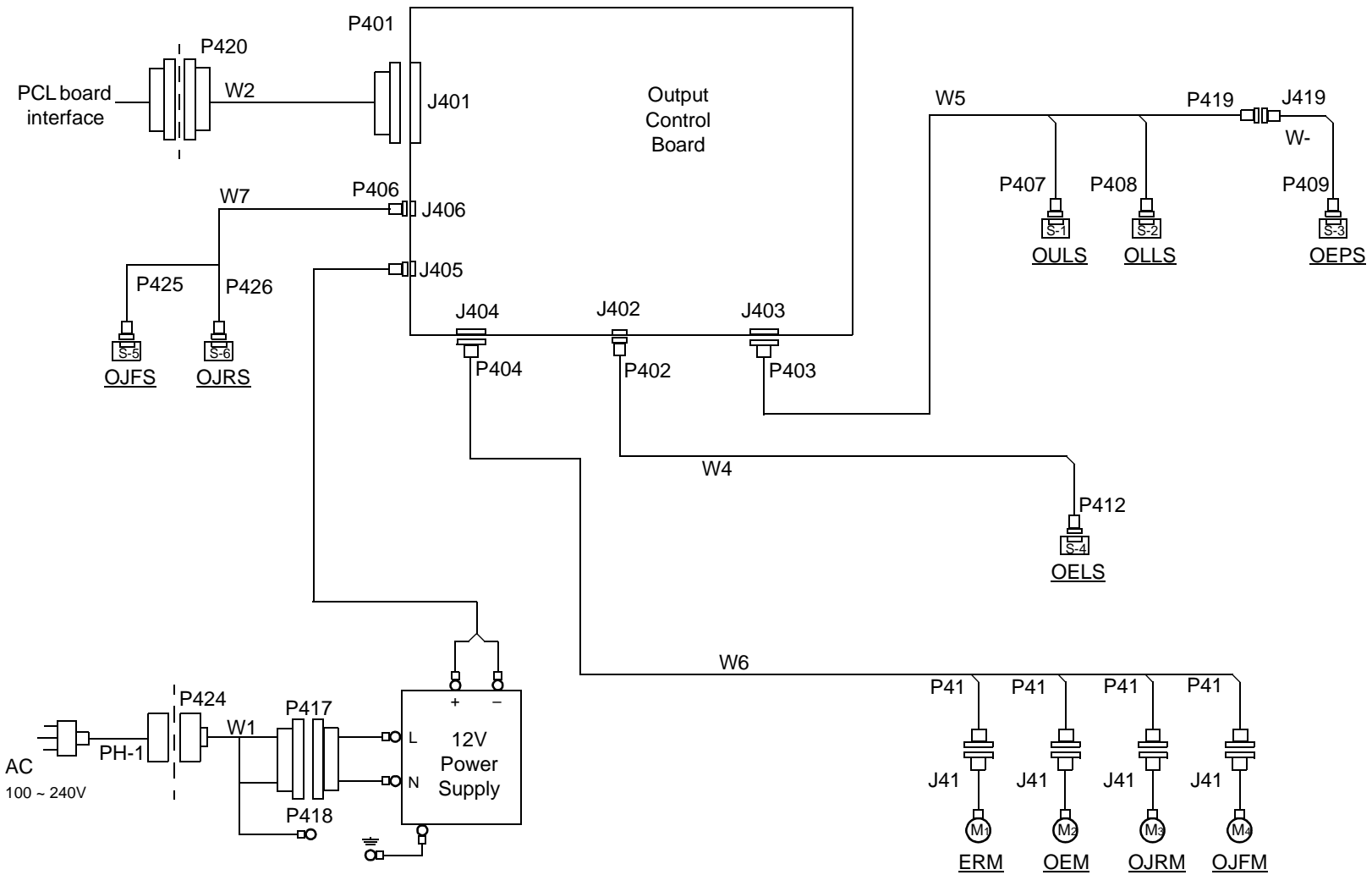


Figure 8-11. Connection Diagram for the 1400-Sheet Stacker

Chapter 9

General Printer Maintenance

Contents

General Printer Maintenance

Introduction	9-3
Every-Call Cleaning Procedure	9-6
Adjusting Paper Feed Tension	9-8
Lubrication Procedure	9-11
Tune-Up Maintenance Procedure	9-18

General Printer Maintenance

Introduction

This section describes the primary printer maintenance procedures to be completed during service calls. In addition, this introduction reviews safety precautions, tool requirements, and the printer maintenance record.

Every-Call Cleaning Procedure (page 7-6)

The every-call cleaning procedure, as the name implies, is performed every time the printer is serviced. It includes a thorough cleaning of the printer, requiring the removal of all major components and performance of specific cleaning tasks related to each one. It also includes vacuuming all excess toner and other contamination from the interior of the printer.

Paper Feed Tension Adjustment Procedure (page 7-8)

You may need to adjust the paper feed tension to correct jamming. Adjustment procedures for older and newer printers are included.

Lubrication Procedures (page 7-11)

Lubrication procedures are performed whenever needed, though lubrication should be applied sparingly. The required lubricants, including oil, molycote and red grease, can be purchased from the printer's manufacturer.

Tune-Up Procedure (page 7-18)

The tune-up maintenance procedure is performed when the printer has yielded sub-standard prints after you've completed standard maintenance procedures, or has printed one-to-two-million images. A tune-up maintenance kit is required for this procedure.

Safety Precautions

Whenever servicing sophisticated electronic/electro-mechanical equipment, common sense, training, caution and experience help in avoiding accidents and mishaps. Be aware of the following safety precautions:

- Follow all instructions in this document.
- Follow all warnings and instructions marked on the printer.
- Unplug the printer when performing any removal, replacement or cleaning procedure.
- Ensure that the power source for the printer matches the power specification label located above the power outlet on the back of the printer.
- Keep combustible materials away from the printer.
- Provide adequate ventilation for the printer so that slots and openings in the cabinet sides are not blocked.

Introduction

- Do not push objects of any kind through the cabinet slots. They may contact dangerous voltage points or other hazards.
- Do not expose the printer to liquids of any kind.
- Protect the power cord. Do not place it in a traffic pattern or allow anything to rest on it.

Tool Requirements: Service Kit

A service kit intended for use solely by the service technician is shipped inside the right side cover of the printer. This kit includes:

- Interlock by-pass tools (2)
- RS-232C loop back assembly
- RS-422 loop back assembly
- Multimeter jumpers (2)
- Corona cleaner brush

Tools/Supplies

To service the printer properly, you will also need to carry the following:

- Soft cleaning cloth
- Cotton swabs
- Corona cleaner
- Basic set of hand tools suitable for office automation equipment repair
- Digital multimeter with test leads, alligator clips, and a high voltage probe
- Service vacuum cleaner, properly grounded and equipped with a 10 micron filter

End User Cleaning Kit

Printers are shipped with an end-user cleaning kit taped inside the front cover. The cleaning kit consists of:

- Cotton swabs
- Corona cleaner brush

This kit is intended for use by the end user.

Printer/Maintenance Record

A maintenance record must be kept for every printer. During the initial service call or at the time of installation, set up a maintenance record for the customer. A copy of the form, illustrated on the following page, should be kept in the *Guide to Operations* so that the maintenance form is always easily accessible.

HISTORY LOG						
To Be Completed By User			To Be Completed By HP			
Page Counter	Operator	HP Notified Date/Time	Down-Time	HP Customer Engineer On Site	Date	Time
Malfunction Description:			Action Required and Comments:			
Malfunction Description:			Action Required and Comments:			
Malfunction Description:			Action Required and Comments:			

Every-Call Cleaning Procedure

Perform the every-call cleaning procedure every time the printer is serviced. When troubleshooting a printer problem, you may be directed to complete this procedure as you isolate or correct the problem. If the procedure is not specifically called out, always complete it before concluding the service call.

The every-call cleaning procedure begins by removing the major consumable supplies from the printer. When the supplies are out, use a toner vacuum to vacuum the printer thoroughly. Clean each consumable supply, following the instructions listed in this section, before returning it to the printer. Conclude the every-call procedure by running test prints to confirm the print quality.

The location of all major printer supplies and instructions for their removal are outlined later in this manual.

Remove Major Consumable Supplies

- Photoconductor unit; place it in its protective packaging.
- Cleaner unit
- Developer unit
- Fuser unit

Inspect and Vacuum

- Inspect the areas in the printer around the developer unit, cleaner unit, photoconductor unit, and fuser unit for damage and wear.
- Vacuum these areas to remove all excess toner, contamination, and/or foreign objects.

Clean Internal Areas

- Clean the erase lamp with a cotton swab.
- Clean the printhead bias plates with a soft cloth.
- Clean the LED lens with a cotton swab, making sure no lint remains on the lens.

Clean the Fuser Unit

- Inspect the unit for damage and contamination; repair or replace as necessary.
- Clean the fuser unit connector, both on the fuser unit and in the printer, with a cotton swab.
- Vacuum in and around the rollers to remove excess toner, contamination, and any foreign objects.
- Reinstall the fuser unit.

Clean the Developer Unit

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Clean any excess toner from the developer unit with a soft cloth.
- Clean the toner patch sensor lens with a soft cloth, making sure no lint remains on the lens.
- Vacuum the felt areas around the magnetic roller, being careful not to vacuum toner from the magnetic roller.
- Reinstall the developer unit.

Clean the Cleaner Unit/Main Charger

- Inspect the unit for damage or contamination; repair or replace as necessary.
- Remove the main charger from the cleaner unit.
- Clean the grid with the cleaner brush.
- Remove the grid to expose the charger wire.
- Clean the charger wire with a cotton swab.
- Reinstall the grid.
- Clean any excess toner from the cleaner unit with a soft cloth.
- Reinstall the main charger in the cleaner unit.
- Reinstall the cleaner unit.

Clean the Photoconductor Unit Area

- Clean the photoconductor seam sensor inside the printer.
- Remove the photoconductor from its protective packaging.
- Inspect the photoconductor for damage or contamination; repair or replace as necessary.
- Reinstall the photoconductor unit.

Clean the Transfer Charger

- Remove the transfer charger.
- Clean the transfer charger housing with a soft cloth.
- Clean the transfer charger wire with a cotton swab.
- Reinstall the transfer charger.

Run Test Prints

- Run test prints to verify print quality.

Adjusting Paper Feed Tension

Printers With Paper Tension Levers

Recently released simplex and duplex printers have pressure tension levers inside the front cover, as illustrated in Figure 9-1, Paper Feed Tension Levers, below:

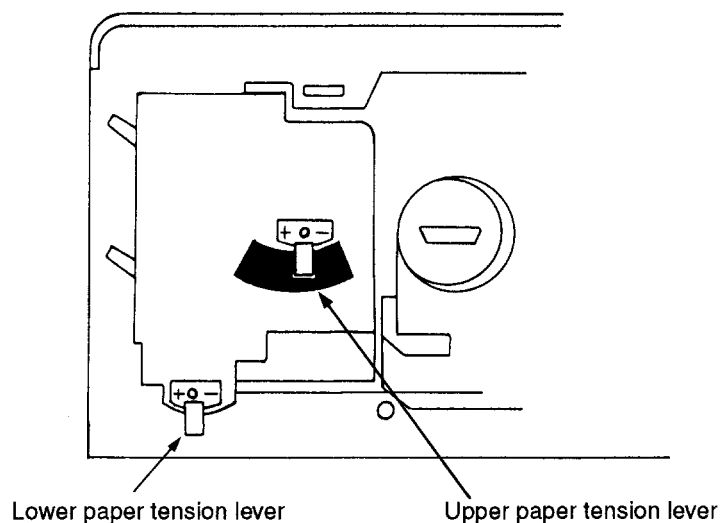


Figure 9-1. Paper Feed Tension Levers

To adjust the tension:

- 1** Open the printer's front cover.
- 2** Identify the cassette whose tension is to be adjusted, and select the correct lever.
- 3** Adjust the tension:
 - To correct multiple feeds: move the lever toward the minus sign, decreasing the feed pressure.
 - To ease paper feeds: move the lever toward the plus sign, increasing the feed pressure.
- 4** Close the front cover, then print paper from the cassette you are adjusting.
- 5** If the paper is still not feeding properly, repeat Steps 3 through 5 until the feed is properly adjusted.

Printers With Pick Pressure Adjusters

Older simplex and duplex printers have two pick pressure adjusters inside the front cover, behind the cassette release cover illustrated below. To adjust pick pressure in these printers:

- 1** Open the printer's front cover.
- 2** Remove the cassette release cover by loosening its two screws and lifting. The release cover is illustrated in Figure 9-2, Removing the Cassette Release Cover, below:

Figure 9-2. Removing the Cassette Release Cover

Introduction

This reveals the pick pressure adjusters, illustrated in Figure 9-3, Paper Pick Pressure Adjusters, below:

Figure 9-3. Paper Pick Pressure Adjusters

- 3** To adjust paper pick tension for the upper cassette, identify the adjuster corresponding to that cassette, then:
 - To decrease the pressure, correcting multiple feeds: loosen the screws, pivot the adjuster up, and tighten the screws.
 - To increase the pressure, easing the paper feed: loosen the screws, pivot the adjuster down, and tighten the screws.
- 4** To adjust paper pick tension for the lower cassette, identify the adjuster corresponding to that cassette, then:
 - To decrease the pressure, correcting multiple feeds: loosen the screws, pivot the adjuster down, and tighten the screws.
 - To increase the pressure, easing the paper feed: loosen the screws, pivot the adjuster up, and tighten the screws.
- 5** Test the adjustments by closing the front cover and sending paper through the printer. You may need to adjust the lever several times (repeating Steps 3 or 4, and 5) before the pressure is set properly.
- 6** When the tension is set properly, reinstall the cassette release cover and close the printer's front cover.

Lubrication Procedure

Complete the lubrication procedure as-needed. Apply lubrication sparingly. Insufficient lubrication may result in unnecessary noise and premature wear of components; excessive lubrication may contaminate printer supplies and make the printer difficult to keep clean.

The following printer illustrations indicate where lubrication may be required. Charts following the illustrations include symbols that indicate the type of lubricant to use on each component:

- ▼ Oil
- Molycote
- Red grease

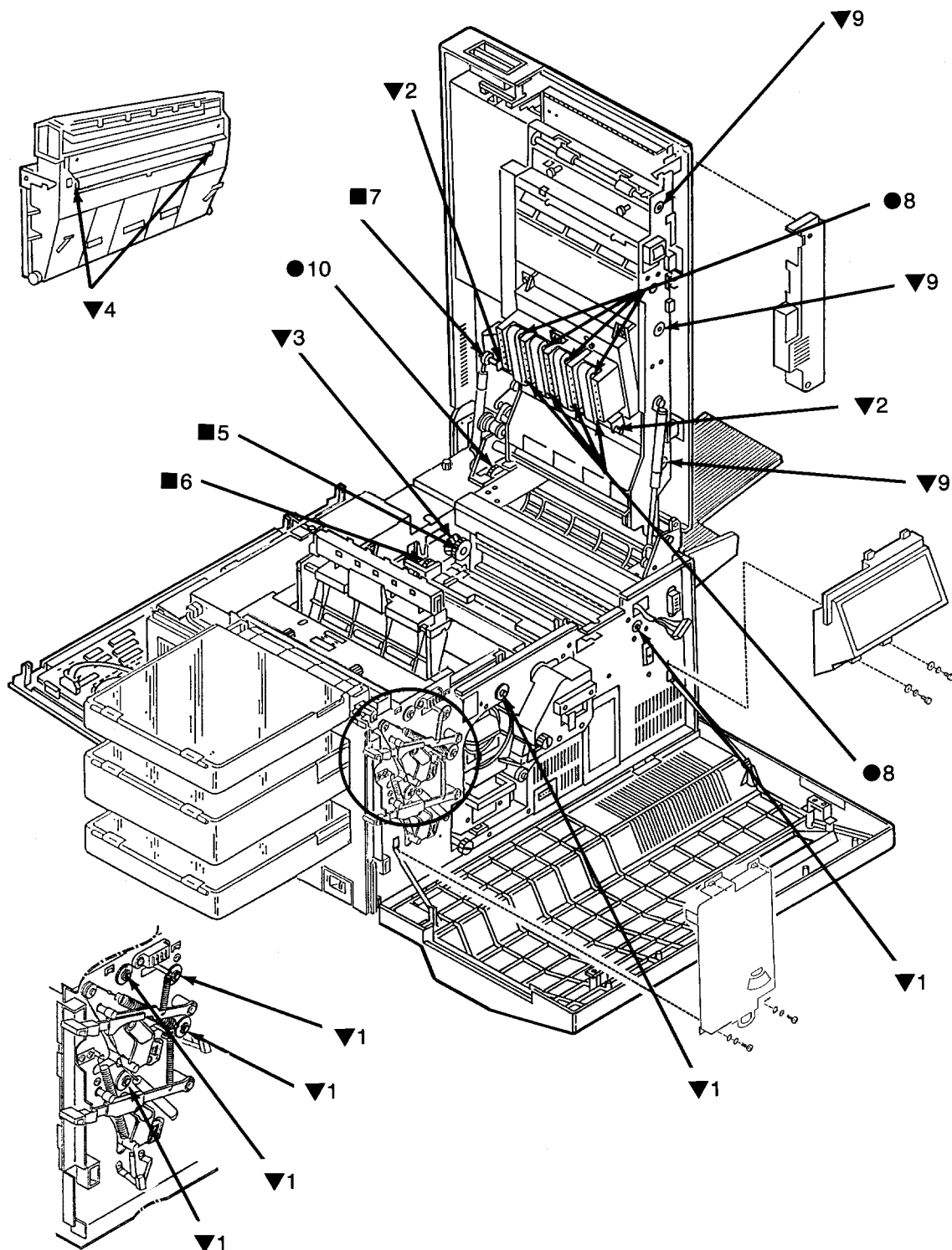


Figure 9-4. Front View Lubrication Points

Front View Lubrication Tables**Table 9-1. All Printers – Front View Lubrication**

Symbol	Part	Lubricant
▼ 1	Front roller bearings (paper feed, paper pickup, timing and exit rollers)	oil
▼ 2	Vacuum transport drive shaft	oil
▼ 3	Fuser drive bearing	oil
▼ 4	Upper paper guide roller	oil
■ 5	Fuser drive gear	red grease
■ 6	Vacuum transport drive gear	red grease
■ 7	Vacuum transport gear	red grease
● 8	Vacuum transport rollers	Molycote

Duplex Only**Table 9-2. Duplex Front View Lubrication**

Symbol	Part	Lubricant
▼ 9	Duplex roller bearings	oil
● 10	Lower duplex drive assembly	Molycote

Figure 9-5. Rear View Lubrication

Rear View Lubrication Tables**Table 9-3. All Printers – Rear View Lubrication**

Symbol	Part	Lubricant
▼ 1	Clutch shafts: upper pick-up roller, lower pick-up roller, upper feed roller, lower feed roller, paper timing roller	oil
● 2	Upper and lower pick-up roller drive assemblies	Molycote
● 3	Main drive gear assembly	Molycote
● 4	Main drive gear	Molycote
● 5	Main drive motor gear	Molycote
● 6	Fuser drive gear	Molycote
● 7	Fuser drive assembly	Molycote

Duplex Only**Table 9-4. Duplex Only Rear Lubrication**

Symbol	Part	Lubricant
▼ 8	Clutch shaft bearing	oil
● 9	Lower duplex drive assembly	Molycote
● 10	Upper duplex drive assembly	Molycote
● 11	A roller drive gears	Molycote
● 12	B roller drive gears	Molycote
● 13	C roller drive gears	Molycote

Figure 9-6. Duplex Only: Top View Lubrication

Table 9-5. Duplex Top View Lubrication

Symbol	Part	Lubricant
▼ 1	Duplex pinch rollers	oil

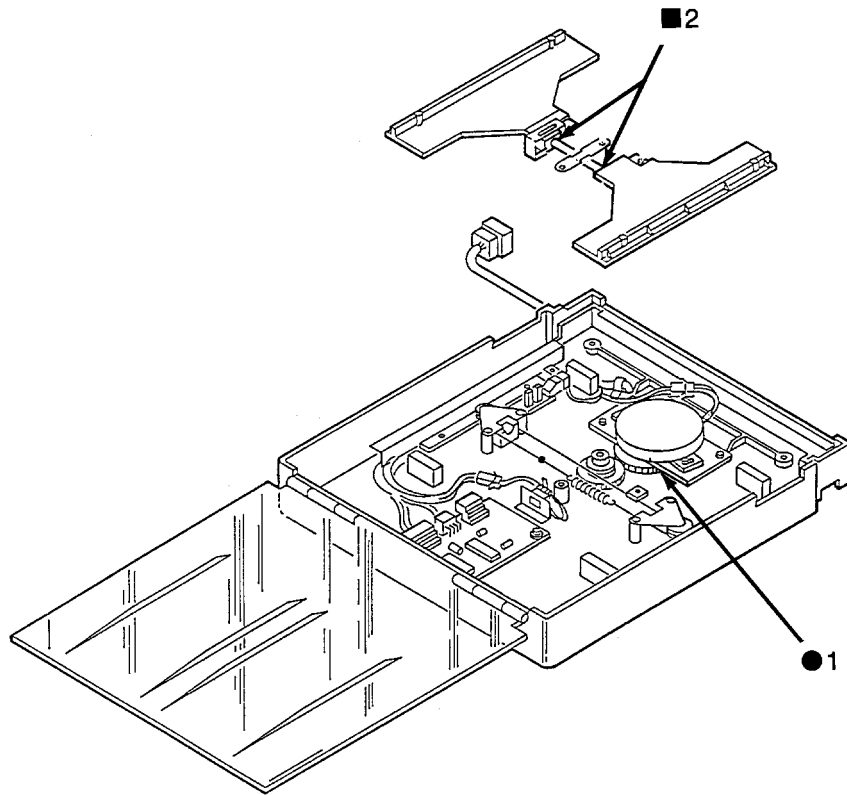


Figure 9-7. Duplex Only: Duplex Holding Tray Lubrication

Table 9-6. Duplex Front View Lubrication

Symbol	Part	Lubricant
● 9	Drive gears	Molycote
■ 10	Tray shaft	red grease

Tune-Up Maintenance Procedure

The tune-up maintenance procedure should be performed when the printer: jams frequently; yields sub-standard print quality even after completing regular maintenance procedures; and has printed more than one- or two-million prints. At this point in the life of the printer, the roller assemblies, transfer charger, and static brushes must be replaced. All of the required components are packaged together in a Tune-Up Maintenance Kit.

- 1** For detailed instructions on how to replace each of these components, refer to [Chapter 7, “Removal/Replacement Procedures”](#). General guidelines follow for unpacking the component, along with an outline of the order in which the components should be replaced.
- 2** Unpack the maintenance kit, which is shipped in a folded cardboard pack. Remove the shipping carton and unfold the cardboard pack.
- 3** Make sure that you have received all of these replacement components, shown in [Figure 9-8, “Tune-Up Kit Components,”](#) on page 9-19:
 - Roller assembly, lower feed
 - Roller assembly, upper feed
 - Roller assembly, paper timing
 - Roller assembly, exit
 - Roller assembly, upper paper guide
 - Transfer charger
 - Roller assembly, upper pick up
 - Roller assembly, lower pick up
 - Static brush, upper (in cardboard folder)
 - Static brush, lower (in cardboard folder)
 - Label (taped to the top of the package)
- 4** Unplug the printer.
- 5** Open the top cover.
- 6** Remove the photoconductor unit. Place the unit in its protective packaging in a safe place away from the work area.

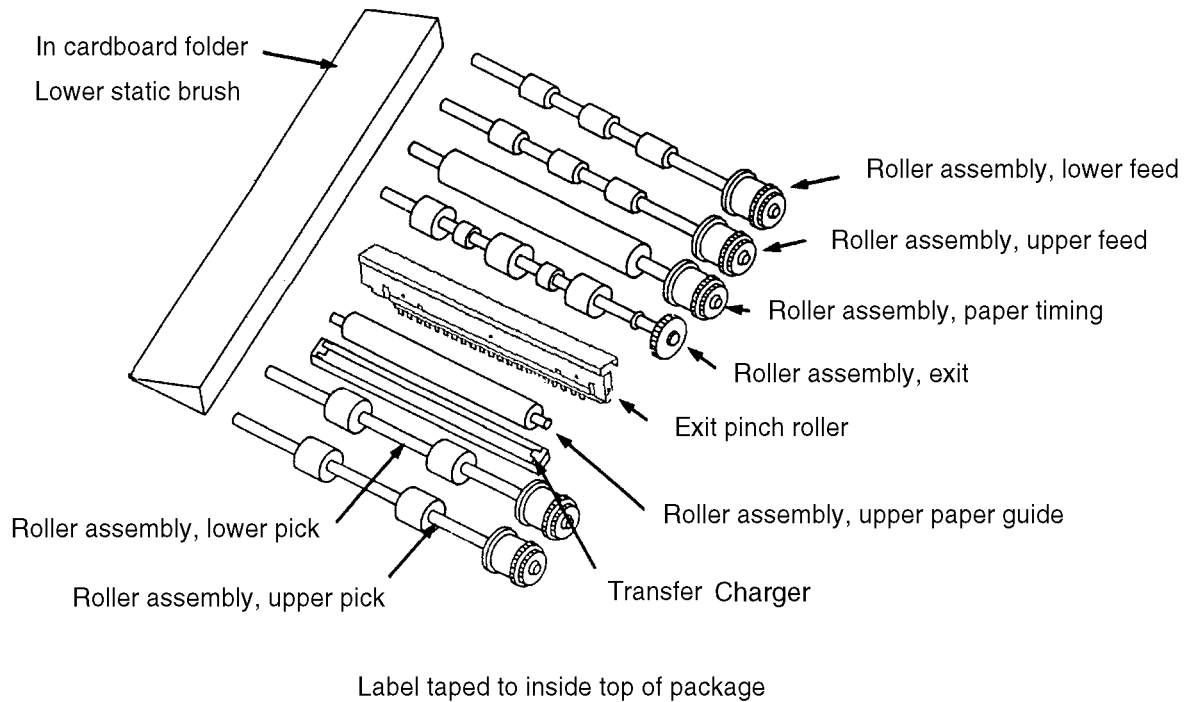


Figure 9-8. Tune-Up Kit Components

- 7** Replace the component assemblies in this order:
 - Paper timing roller
 - Exit roller
 - Upper pick up roller
 - Lower pick up roller
 - Upper feed roller
 - Lower feed roller
 - Transfer charger
 - Lower static brush
 - Upper static brush
 - Upper paper guide roller
- 8** Perform the every-call cleaning procedure on [page 7-6](#).
- 9** Plug in the printer and turn it on.
- 10** Run test prints to ensure that the paper feeds correctly through the printer.
- 11** Fill in the label with the date and meter count. Affix it inside the front cover next to the printer's serial number.

Introduction

Appendix A

Abbreviations and Acronyms

ACIA	Asynchronous Communication Interface Adapter	EPROM.	Erasable Programmable Read Only Memory
ALU	Arithmetic Logic Unit	EPP	Electrophotographic Process
APA	All Points Addressable	EPS	Exit Paper Sensor
ARC	“A” Roller Clutch (Duplex only)	ERASER.	Erase Lamp
ARIF.	Array Interface	EV30.	Enhanced Video K30 printer
ATC	Auto Toner Control	EXS.	Exit Solenoid (Duplex only)
CLEANER	Cleaner Unit	FA4	Cooling Fan (Duplex only)
CNT	Counter	FDC.	Floppy Disk Controller
COOLING FA2 .	Cooling Fan	FDD.	Floppy Disk Drive
COS	Cover Open Sensor (Duplex only)	FL	Fuser Halogen Lamp
CRS	“C” Roller Solenoid (Duplex only)	FRU.	Field-Replaceable Unit
CRT	Cathode Ray Tube	FUSER	Fuser Unit
CRTC	CRT Controller	HCI	High Capacity Input
CRU	Customer-Replaceable Unit	HCO	High Capacity Output
DB-.	Developer Bias Negative	HEAD	LED Array Print Head
DB+	Developer Bias Positive	HDD	Hard Disk Drive
DC P.S.1	DC Power Supply	HVU	High Voltage Unit
DEV	Developer Unit	IGS	Image Generation System
DMAC	Direct Memory Access Controller	IGS CONT	Image Control System
DMC.	Dynamic Memory Controller	I.L. SW Front . . .	Interlocking Switch (Front)
DRAM	Dynamic Random Access Memory	I.L. SW Top. . . .	Interlocking Switch (Top)
DUPLEX1	Duplex Control #1 (Duplex only)	INS	In Solenoid (Duplex only)
DUPLEX2	Duplex Control #2 (Duplex only)	IPL.	Initial Program Load
EIGS.	Enhanced Image Generation System	Jogging	Jogging Motor
EL.	Eraser LED	L PAPS	Lower Paper Sensor
		LN03.	DEC emulation language
		LPC.	Lower Paper Feed Clutch
		LPE.	Lower Paper Empty Sensor
		LPP	Lower Pick Up Clutch
		LPSS	Lower Tray Interlock Switch
		Main	Main Motor
		MAP	Maintenance Analysis Procedures

MCH	Main Charger Unit	RPS	Registration Paper Sensor (Duplex only)
MCS	Main Charger Sensor	RSS	Registration Side Sensor (Duplex only)
MIGS	Minter Image Generation System	SCC	Serial Communication Controller
MPU	Micro Processing Unit	SIG IF or SIF . . .	Signal Interface Board
MUX	Multiplexer	SRAM	Static Random Access Memory
OPC	Organic Photoconductor	SRC	System Reference Code
OPPNL	Operator Panel	SRMR2	Side Registration Motor Control #2 (Duplex only)
PC	Photoconductor	Suction FA3	Suction Fan
PCL	Hewlett-Packard Printer Con- trol Language (Software)	SW5	Upper Cassette In Switch
PCL	Printer Control Logic Board (Hardware)	SW6	Lower Cassette In Switch
PCL5	HP Printer Control Language (Version 5)	TAG	Troubleshooting Analysis Guide
PCU	Photoconductor Unit	TC	Toner Concentration
PFS	Paper Full Sensor	TCH	Transfer Charger Unit
PH 1	A.C. Power Cord	TCS	Transfer Charger Sensor
PIA	Peripheral Interface Adapter	TDS	Toner Density Sensor
PIT	Parallel Interface/Timer	TES	Toner Empty Sensor
PMP	Page Map Primitives	TFS	Tray Front Sensor
POR	Power On Reset	TH	Thermistor
PPS	Paper Path Sensor (B-C Sensor) (Duplex only)	TO SIG IF	To Signal Interface
PROM	Programmable Read Only Memory	TOSIGIF CENT	To Signal Interface Centronics
PS	PostScript	TONER	Toner Motor
PSS	Photoconductor Seam Sensor	TPS	Timing Paper Sensor (Schematics)
PTM	Programmable Timer Module	TPS	Toner Patch Sensor (Printer)
PTS	Paper Timing Sensor	TRC	Timing Roller Clutch
PW CONT2	Power Control #2	TRS	Tray Rear Sensor
PW CONT3	Power Control #3	PAPS	Upper Paper Sensor
PWBA	Printed Wire Board Assembly	UMT 1-3	Usage Meter Drive Signal
RAM	Random Access Memory	UPC	Upper Paper Feed Clutch
Resist Motor . . .	Registration Motor (Duplex only)	UPE	Upper Paper Empty Sensor
ROM	Read Only Memory	UPP	Upper Pick Up Clutch
Root Motor	“C” Roller Motor (Duplex only)	UPSS	Upper Tray Interlock
		VPCL	Video Printer Control Logic Board

A

- "A" roller
 - removal [7-96](#)
- abbreviations [A-1](#)
- AC power
 - malfunctions [3-118](#)
- AC power supply
 - removal [7-29](#)
- acronyms [A-1](#)
- add toner indicator
 - problems [3-51](#)

B

- "B" roller
 - removal [7-97](#)
- back cover
 - connectors [6-11](#)
 - removal [7-6](#)
- back cover interlock switch
 - removal [7-81](#)
- basic troubleshooting [3-5](#)
- belts
 - removing cleaner drive [7-54](#)
 - removing fuser drive [7-56](#)
 - removing paper feed drive [7-58](#)
- board tests
 - EIGS/MIGS [5-20](#)
- brushes
 - removing lower static [7-71](#)
 - removing upper static [7-70](#)

C

- "C" roller
 - removal [7-98](#)
- "C" roller solenoid
 - removal [7-99](#)
- cassette mounts
 - removing lower [7-45](#)
 - removing upper [7-41](#)
- cassettes
 - problems [2-12](#)
 - problems with lower [3-136](#)

- problems with upper [3-135](#)
- testing lower [5-5](#)
- testing upper [5-4](#)
- circuit boards
 - IGS [1-3](#)
 - IGS bit-map RAM malfunction [3-112](#)
 - IGS communication malfunctions [3-108](#)
 - IGS controller malfunctions [3-103](#)
 - IGS to PCL interface malfunctions [3-110](#)
 - PCL [1-3](#)
 - PCL interface problems [3-102](#)
 - removing duplex control #1 [7-89](#)
 - removing duplex control #2 [7-90](#)
 - removing IGS [7-21](#)
 - removing jogging motor [7-39](#)
 - removing PCL [7-22](#)
 - removing power control [7-38](#)
 - removing signal interface [7-37](#)
 - settings [6-30](#)
- cleaner drive
 - removal [7-55](#)
- cleaner drive belt
 - removal [7-54](#)
- cleaning kit [9-4](#)
- cleaning procedure [9-6](#)
- communications
 - external problems [3-143](#)
 - problems [2-13](#), [3-146](#)
 - testing [5-21](#), [5-22](#)
- connector index [6-4](#)
- connector locations [6-6](#)
- connectors
 - back cover [6-11](#)
 - duplex cover [6-8](#)
 - front cover [6-6](#)
 - left cover [6-7](#)
 - right cover [6-9](#)
 - sheet stacker [8-12](#)
 - top cover [6-10](#)
- continuity checks [1-21](#)
- cooling fan

- removal [7-26](#)
- counter
 - malfunctions [3-140](#)
 - problems [2-13](#)
 - removal [7-20](#)
 - testing [5-7](#)
- covers
 - removing back [7-6](#)
 - removing EP [7-84](#)
 - removing exit [7-74](#), [7-76](#)
 - removing front [7-5](#)
 - removing front duplex [7-18](#)
 - removing left side [7-8](#)
 - removing lower back [7-7](#)
 - removing rear duplex [7-17](#)
 - removing right side [7-9](#), [7-10](#)
 - removing top [7-14](#)
- cross references
 - error code/TAG [2-3](#)
 - mechanical malfunction/TAG [2-12](#)
 - print quality/TAG [2-9](#)

D

- damaged paper [3-138](#)
- DC power supply
 - removal [7-31](#)
- developed image
 - producing [1-22](#)
- developer bias
 - problems [3-44](#)
 - testing [5-13](#)
- developer unit
 - problems [3-53](#)
- diagnostics
 - communication loop-back [5-21](#), [5-22](#)
 - counter [5-7](#)
 - developer bias [5-13](#)
 - disk drive [5-25](#), [5-26](#)
 - duplex clutch [5-16](#)
 - duplex feed motor [5-14](#)
 - duplex input sensor [5-15](#)
 - duplex tray paper guide motor [5-17](#)
 - EIGS program RAM [5-22](#)
 - EIGS/MIGS bit map [5-23](#)
 - EIGS/MIGS board [5-20](#)
 - envelope fuser solenoid [5-19](#)
 - erase lamp [5-12](#)
 - input feeder [5-19](#)
 - jogging motor [5-8](#)
 - lower cassette [5-5](#)
 - main charger [5-10](#)
 - operator panel [5-4](#)
 - output stacker [5-18](#)
 - paper transport clutch [5-7](#)
 - photoconductor [5-8](#)
 - printhead assembly [5-24](#)
 - running [5-3](#)
 - sensor sequence [5-6](#)
 - toner supply motor [5-9](#)
 - transfer charger [5-11](#)
 - upper cassette [5-4](#)
- diagrams
 - voltage isolation [6-16–6-20](#)
- disk drive
 - formatting [5-24](#)
 - malfunctions [3-104](#)
 - testing [5-25](#), [5-26](#)
- disk drive housing
 - removal [7-25](#)
- diskette drive
 - malfunctions [3-104](#)
- duplex clutch
 - test sequence [5-16](#)
- duplex control board #1
 - removal [7-89](#)
- duplex control board #2
 - removal [7-90](#)
- duplex cover
 - connectors [6-8](#)
- duplex fan
 - removal [7-27](#)
- duplex feed motor [5-14](#)
- duplex input sensor
 - test sequence [5-15](#)
- duplex paper path sensor
 - removal [7-102](#)
- duplex print cycle [1-5](#)
- duplex route motor/solenoid assembly
 - removal [7-95](#)
- duplex route separator
 - removal [7-100](#)
- duplex skew correction cable

- removal [7-92](#)
- duplex tray paper guide motor
 - testing [5-17](#)
- duplex tray registration motor
 - removal [7-91](#)

E

- EIGS program RAM
 - testing [5-22](#)
- EIGS/MIGS bit map
 - testing [5-23](#)
- envelope fuser solenoid
 - testing [5-19](#)
- envelope tray
 - latch problems [3-21](#)
 - problems [3-14](#)
- EP cover
 - removal [7-84](#)
- erase lamp
 - malfunctions [3-65](#)
 - removal [7-83](#)
 - testing [5-12](#)
- error code/TAG cross reference [2-3](#)
- error codes [1-7](#)
 - bit-map RAM [2-9](#)
 - host communication [2-9](#)
 - IGS firmware [2-6](#)
 - IGS software [2-6](#)
 - IGS/disk drive [2-7](#)
 - PCL [2-4](#)
 - PCL failure [2-6](#)
 - PCL/IGS communication [2-4, 2-5](#)
 - printer [2-3](#)
- error log [1-17](#)
 - clearing [1-24, 5-24](#)
- every-call cleaning procedure [9-6](#)
- exit cover
 - removal [7-74, 7-76](#)
- exit pinch roller
 - removal [7-68](#)
- exit roller assembly
 - removal [7-72](#)

F

- fans
 - removing cooling [7-26](#)
 - removing duplex [7-27](#)

- front cover
 - connectors [6-6](#)
 - removal [7-5](#)
- front cover interlock switch
 - removal [7-80](#)
- front duplex cover
 - removal [7-18](#)
- fuser drive
 - removal [7-57](#)
- fuser drive belt
 - removal [7-56](#)
- fuser unit
 - high temperature problems [3-73](#)
 - malfunctions [3-67](#)
 - thermistor malfunctions [3-72](#)

G

- ground system [6-21](#)
- guides
 - problems with upper paper [3-139](#)
 - removing lower paper [7-51](#)
 - removing paper timing [7-52](#)
 - removing upper paper [7-48](#)

H

- high voltage unit
 - removal [7-32](#)

I

- IGS board [1-3](#)
 - bit-map RAM malfunction [3-112](#)
 - communication malfunctions [3-108](#)
 - malfunctions [3-103](#)
 - removal [7-21](#)
- IGS to PCL interface
 - malfunctions [3-110](#)
- input feeder
 - testing [5-19](#)
- input sheet feeder [8-4](#)
- input tray
 - paper size detection malfunctions [3-132](#)
- interfaces [6-22](#)
 - Centronics parallel [6-27](#)
 - RS-232C [6-22](#)
 - RS-422 [6-26](#)
- interlock by-pass tool [1-22](#)
- interlock switches

- overriding [1-22](#)
- top cover [3-192](#)

J

- job offset assembly
 - problems [3-75](#)
 - removal [7-66](#)
- jogging motor
 - testing [5-8](#)
- jogging motor control board
 - removal [7-39](#)
- jumpers
 - signal interface board [6-30](#)

L

- left side cover
 - connectors [6-7](#)
 - removal [7-8](#)
- locating connectors [6-6](#)
- lower back cover
 - removal [7-7](#)
- lower cassette
 - latch problems [3-24](#)
 - paper jams/misfeeds [3-30](#)
 - problems [3-16](#), [3-136](#)
 - testing [5-5](#)
- lower cassette mount
 - removal [7-45](#)
- lower feed roller
 - removal [7-61](#)
- lower paper guide
 - removal [7-51](#)
- lower paper size sensor
 - removal [7-40](#)
- lower pick-up roller
 - removal [7-64](#)
- lower pick-up roller drive
 - removal [7-65](#)
- lower static brush
 - removal [7-71](#)
- lubrication [9-11](#)

M

- main charger
 - circuit malfunctions [3-61](#)
 - problems [3-58](#)
 - testing [5-10](#)

- main gear drive
 - removal [7-88](#)
- main motor
 - problems [3-142](#)
 - removal [7-86](#)
- maintenance
 - cleaning [9-6](#)
 - lubricating [9-11](#)
 - tune-up procedure [9-18](#)
- maintenance record [9-4](#)
- maintenance supplies [9-4](#)
- mechanical malfunction/TAG cross
 - reference [2-12](#)
- misfeeds
 - lower cassette [3-30](#)
 - upper cassette [3-26](#)
- motors
 - problems with main [3-142](#)
 - removing duplex tray registration [7-91](#)
 - removing main [7-86](#)
 - removing toner [7-28](#)
 - testing duplex feed [5-14](#)
 - testing duplex tray paper guide [5-17](#)
 - testing jogging [5-8](#)
 - testing toner supply [5-9](#)
- multiple feeds [3-137](#)

O

- operator panel
 - malfunctions [3-125](#)
 - problems [2-12](#)
 - removal [7-19](#)
 - testing [5-4](#)
- out of toner indicator
 - problems [3-51](#)
- output sheet stacker [8-9](#)
- output stacker
 - testing [5-18](#)
- output tray
 - malfunctions [3-130](#)
 - problems [2-12](#)

P

- paper
 - damaged [3-138](#)
 - multiple feeds [3-137](#)
 - wrinkled [3-138](#)

- paper exit sensor
 - removal [7-78](#)
- paper feed drive belt
 - removal [7-58](#)
- paper feed tension
 - adjusting [9-8](#)
- paper full sensor
 - removal [7-79](#)
- paper handling
 - problems [2-13](#)
- paper input timing
 - problems [3-41](#)
- paper jams
 - duplex area [3-198](#)
 - fuser area [3-34](#)
 - lower cassette [3-30](#)
 - output area [3-39](#)
 - transfer area [3-34](#)
 - upper cassette [3-26](#)
- paper output timing
 - problems [3-43](#)
- paper path [1-6](#)
- paper size
 - codes [5-4](#)
- paper timing guide
 - removal [7-52](#)
- paper timing roller
 - removal [7-59](#)
- paper transport clutch
 - test sequence [5-7](#)
- parallel interface [6-27](#)
- PCL board [1-3](#)
 - malfunctions [3-102](#)
 - removal [7-22](#)
- PCL to IGS interface
 - malfunctions [3-110](#)
- photoconductor
 - testing [5-8](#)
- photoconductor rear guide rail
 - removal [7-35](#)
- photoconductor seam sensor
 - problems [3-54](#)
 - removal [7-33](#)
- power control board
 - removal [7-38](#)
- power supplies
 - +12 Vdc malfunctions [3-79](#)
 - +24 Vdc malfunctions [3-92](#)
 - +5 Vdc malfunctions [3-113](#)
 - 12 Vdc malfunctions [3-90](#)
 - removing AC [7-29](#)
 - removing DC [7-31](#)
 - removing high voltage [7-32](#)
- power-on-reset (POR) [1-21](#)
- print cycle [1-3](#)
- print quality
 - background print example [4-21](#)
 - black print [3-163](#)
 - example [4-13](#)
 - blank print [2-9](#), [3-148](#)
 - example [4-6](#)
 - blank vertical bands example [4-11](#)
 - blurred print [2-11](#)
 - example [4-19](#)
 - blurred vertical streaks [3-177](#)
 - dark areas [3-180](#)
 - dark horizontal bands [3-148](#)
 - dark print [2-10](#), [3-182](#)
 - example [4-13](#)
 - dark speck example [4-14](#)
 - dark spots [3-166](#)
 - dark vertical band example [4-15](#)
 - dark vertical streaks [3-172](#)
 - fusing problems [3-187](#)
 - example [4-24](#)
 - light horizontal bands [3-162](#)
 - example [4-12](#)
 - light print [2-10](#), [3-152](#)
 - example [4-7](#)
 - light print with background example [4-8](#)
 - light vertical streaks [3-160](#)
 - example [4-10](#)
 - misregistration [2-10](#), [3-168](#), [3-194](#)
 - example [4-17](#)
 - overtone print example [4-18](#)
 - residual images [3-182](#), [3-189](#)
 - example [4-22](#)
 - samples [4-3](#)
 - scratches [3-166](#)
 - skewed print [2-10](#), [3-168](#), [3-194](#)
 - example [4-16](#)
 - smear vertical streaks [3-177](#)

- smearing [2-11](#)
- uneven print density [2-11](#), [3-180](#)
- varying print density
 - example [4-20](#)
- voids
 - example [4-9](#)
- voids or white spots [3-158](#)
- washout example [4-5](#)
- white spots
 - example [4-9](#)
- wrinkle example [4-23](#)
- print quality/TAG cross reference [2-9](#)
- printer operation [1-3](#)
- printhead assembly
 - malfunctions [3-191](#)
 - removal [7-23](#)
 - testing [5-24](#)
- problem resolution [3-8](#)

R

- rear duplex cover
 - removal [7-17](#)
- right side cover
 - connectors [6-9](#)
 - removal [7-9](#), [7-10](#)
- rollers
 - removing "A" [7-96](#)
 - removing "B" [7-97](#)
 - removing "C" [7-98](#)
 - removing exit pinch [7-68](#)
 - removing lower feed [7-61](#)
 - removing lower pick-up [7-64](#)
 - removing paper timing [7-59](#)
 - removing upper feed [7-60](#)
 - removing upper paper guide [7-50](#)
 - removing upper pick-up [7-62](#)

S

- safety precautions [9-3](#)
- self-diagnostic mode [5-3](#)
- sensors
 - locations [1-11](#)
 - lower paper size wiring [3-134](#)
 - malfunctioning photoconductor seam [3-54](#)
 - removing duplex paper path [7-102](#)
 - removing lower paper size [7-40](#)

- removing paper exit [7-78](#)
- removing paper full [7-79](#)
- removing photoconductor seam [7-33](#)
- removing upper paper size [7-40](#)
- test sequence [5-6](#)
- testing duplex input [5-15](#)
- upper paper size wiring [3-134](#)
- serial interface [6-22](#)
- service calls
 - completing [1-23](#)
- service record [9-4](#)
- service tool kit [9-4](#)
- sheet feeder [8-4](#)
 - input control board interface [8-7](#)
 - prefeed adjustment [8-6](#)
 - test procedure [8-5](#)
- sheet stacker [8-9](#)
 - connector locations [8-12](#)
 - output control board interface [8-14](#)
 - test procedure [8-10](#)
- signal interface board
 - removal [7-37](#)
 - settings [6-30](#)
- simplex print cycle [1-5](#)
- supplies [9-4](#)
- switches
 - locations [1-11](#)
 - overriding interlock [1-22](#)
 - PCL board registration [3-170](#)
 - removing back cover interlock [7-81](#)
 - removing front cover interlock [7-80](#)
 - removing top cover interlock [7-82](#)
 - signal interface board [6-30](#)
 - top cover interlock [3-192](#)

T

- test prints [1-16](#)
- testing [5-14](#)
- timing
 - paper input [3-41](#)
 - paper output [3-43](#)
- toner motor
 - removal [7-28](#)
- toner patch
 - low reference level [3-47](#)
 - producing [1-22](#)

- too light [3-49](#)
- toner supply motor
 - testing [5-9](#)
- tool kit [9-4](#)
- top cover
 - connectors [6-10](#)
 - removal [7-14](#)
- top cover hinge
 - removal [7-16](#)
- top cover interlock switch
 - removal [7-82](#)
- top cover support
 - removal [7-15](#)
- transfer charger
 - circuit problems [3-58](#), [3-63](#)
 - testing [5-11](#)
- troubleshooting analysis guide (TAG) [1-19](#)
- tune-up maintenance procedure [9-18](#)

U

- upper cassette
 - latch problems [3-18](#)
 - paper jams/misfeeds [3-26](#)
 - problems [3-12](#), [3-135](#)
 - testing [5-4](#)
- upper cassette mount
 - removal [7-41](#)
- upper duplex drive/clutch assembly
 - removal [7-94](#)
- upper feed roller
 - removal [7-60](#)
- upper paper guide
 - problems [3-139](#)
 - removal [7-48](#)
- upper paper guide roller
 - removal [7-50](#)
- upper paper size sensor
 - removal [7-40](#)
- upper pick-up roller
 - removal [7-62](#)
- upper pick-up roller drive
 - removal [7-63](#)
- upper static brush
 - removal [7-70](#)

V

- vacuum transport unit

- removal [7-11](#), [7-13](#)
- voltage
 - isolation diagrams [6-16](#)–[6-20](#)
- voltage ranges
 - operating [1-18](#)

W

- wrinkled paper [3-138](#)